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Possibility of Creating a Common Currency Basket for East Asia*

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Introduction

After East Asian countries experienced the Asian currency crisis, it has been regarded that regional financial cooperation in East Asia is necessary among East Asian countries in order to prevent a currency crisis in the future. A regional financial cooperation has been realized in a form of the Chiang Mai Initiatives that is a network of currency swap arrangements among ASEAN + 3 (China, Japan, and Korea). The movements have given us momentum to activate policy dialogues in a field of international monetary arrangements among East Asian countries. This paper has an objective to consider a desirable regional currency arrangement in East Asia, which is expected to be an important topic in policy dialogue among East Asian countries in the future.

Our experience of the Asian currency crisis remind us of a fact that the de facto dollar peg was inadequate for East Asian countries that have close economic relationships with not only the United States but also Japan, European countries, and intra-regional countries. It follows that if a regional currency arrangement will be established in East Asia, regional currencies should have stable linkages with each other and should be stable in terms of not a single major currency but a currency basket. The EU created a single common currency, the euro, placing its base on the European Currency Unit (ECU), which had been used a currency unit in the EU before they introduced the euro into the EU. In the case of the ECU, member country currencies were linked with the ECU consisted of the member country currencies while the ECU was floating against the US dollar and the Japanese yen. A possible common currency in East Asia will be

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contrast to the ECU.

In addition, we investigate possibility of creating a common currency basket in East Asia according to the optimal currency area theory. Bayoumi, Eichengreen, and Mauro (2000) used a structural VAR model to make an empirical analysis on an optimal currency area in East Asia. We use a Generalized Purchasing Power Parity (G-PPP) model to analyze the issue. We investigate which parts of East Asian countries will be able to create a common currency area. We have analytical results that ASEAN5 countries and Korea will be able to form a common currency area and that a common currency basket will be more applicable as an anchor currency than the US dollar if these countries form a common currency area.

This paper consists of five sections. Next section places stress on creation of a common currency basket for East Asian countries in order to resolve a kind of coordination failure in exchange rate policies among East Asian countries. In section 3, we empirically analyze whether parts of East Asia will be able to become a common currency area with a currency basket as an anchor currency in order to consider possibility of creating a common currency basket in East Asia. We use a G-PPP model to investigate which of East Asian countries can create a common currency area with a currency basket as an anchor currency. In section 4, we report our empirical results. In section 5, we discuss about policy implication for a common currency area in East Asia from our empirical results. In conclusion, we summarize our consideration on possibility of creating a common currency basket for East Asia.

A common currency basket for East Asian countries

Some empirical researches found that a currency basket system would contribute to stabilizing trade balances and capital flows in East Asian countries. Ito, Ogawa, and Sasaki (1998) estimated optimal weights on the US dollar and the Japanese yen in a currency basket, which would have stabilized trade balances in East Asian countries before the Asian currency crisis. Results of the estimation showed that the optimal weights on the US dollar were smaller than their actual weights that were estimated by Frankel and Wei (1994) and Kawai and Akiyama (1998). It implies that it was not a *de facto* dollar peg system but a currency basket peg system that would have stabilized their trade balances.

Ogawa and Sun (2001) simulated capital inflows to three crisis-hit countries, which include Thailand, Indonesia, and Korea, under a currency basket peg system where

weights on the US dollar and the Japanese yen had been 50%: 50% in a currency basket. Results of the simulation concluded that the *de facto* dollar peg system stimulated capital inflows to the crisis-hit countries before the Asian currency crisis.

We should consider why the monetary authorities of East Asian countries tended to choose a *de facto* dollar peg system rather than a currency basket peg system. In fact, linkages of East Asian countries to the US dollar recently have returned to the high level before the crisis as McKinnon (2000) and Ogawa (2002a) pointed out. A reason why the monetary authorities are unwilling to adopt a currency basket peg system is related with a kind of coordination failure in choosing exchange rate system. The first mover to a currency basket peg system might temporarily destabilize its relations with the neighbor countries that are still pegged their home currencies to the US dollar as shown in a prisoners' dilemma in a game theory. [1]

Ogawa and Ito (2002) used a theoretical two-country model to examine an optimal exchange rate system for East Asian countries that export goods to the United States, Japan, and neighboring countries in order to minimize the fluctuation of trade balances in home countries, in the environment where the yen-dollar exchange rate fluctuates. It was shown how an East Asian country's choice of the exchange rate system (or weights in the basket) is dependent on the neighbor country's choice. The dollar weights in the currency baskets of the two countries are determined as Nash equilibrium. There may be multiple equilibriums, and a "coordination failure" may result.[2]

Under uncertainty about the future movements in the exchange rate of the US dollar vis-à-vis the Japanese yen, the monetary authorities have higher degree of possibility of facing with the coordination failure in choosing exchange rate system. Suppose that alone the monetary authorities of a country switch their exchange rate policy to the currency basket peg system while the other monetary authorities of the neighbor countries keep the dollar peg system. A currency of the country that adopted the currency basket peg system would appreciate against the currencies of the neighbor countries if the US dollar depreciated against the Japanese yen. Therefore, under such uncertainty, the monetary authorities tend to work out a "wait-and-see" strategy if they are averse to risk.

All of the monetary authorities are likely to take such a "wait-and-see" strategy if they are all risk averse. The situation is a so-called prisoner's dilemma in a game theory.

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[1] Bénassy-Quéré (1999) and Ohno (1999) analyzed how the monetary authorities peg the home currency to the US dollar as a result of a coordination failure.

[2] Ogawa (2002b) and Nakata and Ogawa (2002) conducted empirical analyses on possibility of coordination failure in choosing exchange rate system in East Asia. They found the possibility of the coordination failure among the ASEAN, China, and Korea.

All of the monetary authorities cannot help but choose to keep the dollar peg system, which means Nash equilibrium, even though they should know that there is a better cooperative solution Coordination among some of the monetary authorities in East Asian countries is necessary for shifting the situation from the Nash equilibrium to a cooperative solution.

A form of coordination is international policy coordination for arrangements of international monetary system. For example, all of the monetary authorities of the countries in a regional area might agree on an arrangement that they create a common currency that consists of a currency basket. They might make references to the common currency in conducting their exchange rate policy. A rigid arrangement is that all of the monetary authorities in the regional area peg their home currencies to a common currency basket. On one hand, one of more flexible arrangements is that they target the home currencies in a wider band around a central exchange rate of the home currencies vis-à-vis a common currency basket.

In either case, it is necessary to create a common currency basket that the monetary authorities of the countries make reference to when they conduct their exchange rate policies. Such regional currency arrangements might help to prevent competitive devaluation among the related currencies in a region. If the monetary authorities of a country devalue its home currency, the devaluation worsens price competitiveness of products made in neighbor countries. For that reason, the monetary authorities of the other countries should have an incentive to devalue their home currency, following the first country's deflator. The regional currency arrangements that the monetary authorities in a region make a commitment to a coordinated exchange rate policy of making references to a common currency basket would prevent from a possible competitive devaluation.

Here we should consider possibility of introducing a common currency basket in East Asia. What is a condition where we can use a common currency basket among some countries? It is clear that optimal weights on currencies in a currency basket should be almost the same among the counties. Thus, an area where a common currency basket is used is related with a common currency area.

According to the optimal currency area theories, possibility of establishing a common currency area in a region depends on whether the region is an optimal currency area or not. It is pointed out in the optimal currency area theories that some factors determine an optimal currency area. Mundell (1961) regarded mobility of labor as a necessity of common currency area while McKinnon (1963) regarded openness of economy as another necessity. Moreover, symmetry of shocks was pointed out as a factor

for optimal currency area (Bayoumi and Eichengreen (1993)). It is possible to form an optimal currency area because it is unnecessary to make intra-regional adjustments in a region where symmetric shocks happen. Symmetry of supply shocks is focused on because supply shocks have long run effects on GDP while demand shocks have no long run effects on GDP in a situation where the natural unemployment hypothesis holds. The supply shocks mean ones that have effects on production function like productivity shocks and oil price shocks.

Bayoumi, Eichengreen, and Mauro (2000) made an empirical analysis on an optimal currency area in East Asian region[3]. Their results show that correlations are relatively higher among Malaysia, Indonesia, and Singapore. Also, a correlation is higher between Singapore and Thailand. Therefore, these ASEAN four countries might be able to form an optimal currency area. Moreover, supply shocks in Japan has a positive correlation with Taiwan, Korea, and Australia. On one hand, it has lower correlation with ASEAN countries except for Thailand.

An empirical analysis of optimal currency area for East Asia

We further extended earlier works of Kawasaki (2000) and Ogawa and Kawasaki (2001) in order to analyze empirically an optimum currency area for East Asia. In this paper, we also use a Generalized Purchasing Power Parity (G-PPP) model to conduct the empirical analysis as well as in earlier works. Now we use a common currency basket as well as the US dollar as an anchor currency. We defined the common currency basket as one that is composed of three major currencies: the US dollar, the Deutsche mark, and the Japanese yen. We supposed that each of the three currencies had same weights in the currency basket.

The G-PPP model is extended from a simple PPP model by taking into account difficulties in holding PPP because frequently occurred nominal and real shocks continuously have effects on macro fundamentals. Even in the long run, changes in a bilateral exchange rate depend not only on changes in relative prices between the related two countries but also on those in relative prices among the two countries and other countries. Price levels in other countries may have effects on domestic price levels in the two countries because prices of intermediate goods imported from abroad may have effects on prices of domestic products. Therefore, it is assumed in the G-PPP model that there are common factors among some bilateral real exchange rates of the home

[3] Sato, Zhang, and Mcaleer (2001) used a similar structural VAR method to investigate an optimal currency area for East Asia.

currency vis-à-vis currencies of foreign countries with which the home country has strong economic relationships. Thus, the real exchange rates have stable equilibrium in the long run if they have strong economic relationships with each other.

The G-PPP model explains that a PPP holds if a linear combination of some bilateral real exchange rate series has equilibrium in the long run, even though each of the bilateral rate series is nonstationary. Therefore, we investigate such stable linear combinations in the long run composed with some bilateral real exchange rate series based on the cointegration analysis of Johansen and Juserius (1990). Using this econometric method, we can find the optimal members in the common currency area.

(1) Data

Our sample period in the empirical tests for G-PPP model covers from October 1985 to June 1997. Our sample countries are seven East Asian countries which include Korea, Singapore, Malaysia, Thailand, the Philippines, Indonesia, and China. Real exchange rates were based on monthly data of nominal exchange rates and consumer price index of the related countries.[4] The rest of data are from IMF, *International Financial Statistics* (CD-ROM).

(2) Anchor currencies and common currency areas

We regarded either the US dollar or the common currency basket that was composed of the US dollar, the Deutsche mark, and the Japanese yen as an anchor currency. Since we supposed that each of three major currencies had same weights in the currency basket, the real exchange rate between each of the seven East Asian currencies and the currency basket could be defined as follows,

$$re_{i,CB} = \left(re_{i,US}\right)^{(1/3)} \cdot \left(re_{i,JP}\right)^{(1/3)} \cdot \left(re_{i,DM}\right)^{(1/3)}. \qquad (1)$$

We analyzed which of the seven East Asian countries (Korea, Singapore, Malaysia, Thailand the Philippines Indonesia, and China) can form a common currency area with either the currency basket or the US dollar as an anchor currency. In this paper, we focused on the cases in which more than two countries are included in the linear combinations, therefore, each combination consisted of three, four, five, six, or seven countries was examined as an optimal currency area. Then, we conducted "Johansen test" for 198 possible linear combinations. Since the G-PPP model is assumed that all

[4] Although Enders and Hurn (1994) used the wholesale price index to calculate the real exchange rate, we use the consumer price index because we assume two commodities which include the tradable and the non-tradable goods. See Kawasaki (2002) for details of the theoretical background.

real exchange rates in a common currency area must be nonstationary, we conducted the unit root tests: Augmented Dickey-Fuller (ADF) test, and Kwaiatkowski, Phillips, and Shmidt and Shin (KPSS) type unit root test, for each real exchange rate series, and confirmed all series have a unit root.

(3) Cointegration analysis

We used the Johansen method (Johansen and Juselius (1990)) to test whether a long run relationship can exist in the vector auto regressive model (VAR). In the case that there is a long run relationship in the VAR model, we can recognize that variables in the model are cointegrated, and that equilibrium errors from the long run relationship must be corrected in the long run. Assuming that variables in the model are cointegrated, we can rewrite the VAR model as the error correction model (ECM) as follows:

$$\Delta R_t = \sum_{l=1}^{k-1} \Gamma_l \Delta R_{t-l} + \Pi R_{t-1} + \varepsilon_t, \ \Pi = \alpha \cdot \beta' \qquad (2)$$

We tested whether products of nonstationary vector R_t and matrix Π, which contained cointegration vector, were stationary or not fewer than 5% of significance level.

It points out the robustness problems in conducting the Johansen test. One problem is related with choice of the lag length in VAR or ECM. It is the usual way to choose the lag length of VAR model or ECM according to the fitting criteria, e.g. Schwartz information criterion or others. It is true that these criteria are useful but may not indicate the number of lag-order to choose uniquely. Unfortunately, two models with different lag length bring us different results. It means that we may have two opposite implications for our investigations. Another problem in conducting the cointegration analysis is related with difficulties in identifying the proper rank of matrix Π and the appropriate equilibrium in the matrix β. When the Johansen test indicates the possibilities of the several cointegration vectors in the matrix β, which means that the number of the ranks r of matrix Π can be more than one, we may face the identification problem to choose the long run equilibrium.

In our empirical test, it is also important to investigate which error correction model with lags is fitter for the data generating processes and can bring each variable into appropriate long run equilibrium. Therefore, our attempts to improve the robustness were to carefully conduct the Johansen test with additional 8 tests as follows.

Firstly, we assumed the maxim lag-effect of the data generating process was 12 lags

and conducted the Johansen test for each model containing from 2 lags to 12 lags. Here we varied the sample period to equalize the degree of freedom in each of the 12 models. Secondly, we calculated the statistics of two information criteria: Schwartz information criterion and Hannan-Queen information criterion. Thirdly, we conducted the three kinds of tests for autocorrelations in the residuals of the ECM: Ljung-Box test on the estimated auto- and cross-correlations, LM-type test for the first and fourth order autocorrelations. These calculations and test statistics help us to choose lag order properly. At the fourth step, we conducted the additional three chi-square-based tests for each alpha or beta in matrix Π to avoid identification problems about the appropriate equilibrium. The first chi-square-based test will show whether each variable is excluded from the vector. The second one is to test whether the individual series are stationary by themselves. The last one is to test whether each variable can be considered weak exogenous or not. These three tests will be helpful for us not only to identify the long run equilibrium but also to choose proper lag length in the ECM. If we choose proper lag-order of the ECM, the null hypothesis of the second test must be rejected. If the second test shows the acceptance of null hypothesis of stationarity, it conflicts with the fact that each variable has unit root since we had already confirmed the nonstationarity of each variable with two kind of unit-root test. Therefore, the second test would help us to choose proper lag length in ECM. The other two tests also help to indicate the possibility of over-identification or under-identification. The first test will show the lack of needed variables in the model. Third one can indicate the existence of extra variables if we wrongly increase lag-order of the model.

In our arbitrary strategy improving the robustness, the point is that we should choose a lag length by taking into account whether the equilibrium of that model is adequate for the cointegration relationship or not. In other words, we investigated models that have an appropriate equilibrium in the data, and compared with the fitness of those models about lag-order. Our first step to choose ECM with proper lag order and appropriate long-run equilibrium is that we select the cases in which the assumption of no serial correlation about residuals holds. Next step is that we select the cases in which the chi-square-based tests show significance in the alternative hypothesis of the long-run exclusion, stationarity, and weak exogeneity. Final step is to make a comparison among all possible models in two information criterions. When we had more than two different results, we should compare the information criteria. Following these steps, we could uniquely define each ECM that included proper lag-order and appropriate equilibrium. We showed details of our strategy to define the unique model in the Appendix.

Table 1 shows maximum ranks, two kinds of information criteria, and three tests for residuals for each ECM from 2 to 12 lags. From the results of the Table 1, we could select a few or more cases from each set. Combining the results of the three chi-squared-tests for residual, we can find the most appropriate long-run equilibrium and lag-order from those cases. Then we conducted the three chi-square-based tests for each alpha or beta in matrix Π. We carefully chose the optimal error correction model with lags according to our strategy.

Next, Table 2 shows the result of Johansen test; □-trace and □-max tests after selecting the correct lag-order of all ECM. We had several cointegration relationships: 58 combinations for the US dollar as an anchor currency and 46 combinations for the common currency basket as an anchor currency.

Table 3 shows the result of three chi-square-based test identified as the optimal model. Here, we should only focus on the combinations in which all countries in a liner combination have significant results on those three tests, because we need to specify the minimal combination of currency area including all of the seven East Asian countries.

Empirical Results

For the US dollar, we could find only one combination in which all countries in a liner combination showed significant results on the three tests. This combination includes Singapore, Malaysia, Thailand, and Indonesia in the currency area (US409). For the common currency basket, we could find 9 combinations in which all countries in a liner combination showed significant results on the three tests. 4 of the 9 combinations include three East Asian countries in the currency area, Singapore, Thailand, and Indonesia (CB313), Singapore, Malaysia, and Thailand (CB315), Singapore, Thailand, and China (CB324), and Korea, Singapore, and China (CB335). The other 5 combinations include four East Asian countries in the currency area; Korea, Malaysia, the Philippines, and Indonesia (CB404), Korea, Singapore, Thailand, and Indonesia (CB406), Korea, Malaysia, Indonesia, and China (CB418), Korea, Singapore, Thailand, and China (CB426), and Singapore, Thailand, Indonesia, and China (CB428).

Our empirical results showed three features in comparing the US dollar with the currency basket as an anchor currency. First, while the common currency area evaluated by the US dollar as an anchor currency has only one combination, the common currency area evaluated by the currency basket as an anchor currency has several varieties of combinations. Second, some ASEAN countries can form a common currency area together with Korea or China with the currency basket as an anchor

currency while the common currency area with the US dollar as an anchor currency is limited to the four ASEAN countries. Third, for the currency basket as an anchor currency, we could find two different groups, whose countries include all of the East Asian countries but are not overlapped each other; the combination of Korea, Malaysia, the Philippines, and Indonesia (CB404) and the combination of Singapore, Thailand, and China (CB324). We could not find the two groups when we test possibility of the common currency area by the US dollar as an anchor currency. From these features, our empirical results suggest that the common currency basket is more applicable for an anchor currency than the US dollar when East Asian countries form a common currency area in the region.

Policy implications

Among the findings, the third one implies that the two non-overlapping groups will be able to form a larger common currency area by their inter-group policy coordination. Eventually, adjustment speeds toward the long run equilibrium are different between the two groups while the two groups can share the same basket weights. The equilibrium defined by our G-PPP model can be interpreted as the balance of payments equilibrium for a total of the common currency area countries. If the two groups have different adjustment speeds toward the long run equilibrium, there is a possibility that one group may run current account surplus in total while the other may run current account deficit in total during the adjustment process toward the long run equilibrium. Our empirical results suggested that the combination which includes all the seven countries could not be stable in the long run while the two non-overlapping combinations had cointegration relationships when both of the two combinations used the common currency basket as an anchor currency. It means that each of the two groups will be able to create a different common currency area by using a common currency basket and the same basket weights at the same time. However, in the adjustment process toward the long run equilibrium the two groups may face a currency account deficit or surplus. In this case, governments included in the two common currency area need to make a policy coordination between the two groups, that is called an "inter-group policy coordination". We suggest that the key feature of the "inter-group policy coordination" is to employ macroeconomic policies including fiscal policy or fiscal transfers to adjust the transitional asymmetry in the balance of payment between two groups during adjustment process. In addition to the inter-group policy coordination, we can suggest that deepening of the financial integration or structural economic

integration in East Asia may help to equalize the different adjustment speeds between the two groups.

Conclusion

This paper suggested that it is necessary to create a common currency basket in order to resolve coordination failure in choosing desirable exchange rate system for East Asian countries. From this point of view, it is natural that a future regional currency arrangement in East Asia should be related with a common currency basket. The European experiences of the ECU should provide us with useful information in considering a common currency unit in East Asia. In the case of East Asian countries, we have international trade relationship with variety of regions that include the intra-region, Japan, the United States, and European countries. Therefore, a possible common currency unit in East Asia would consist of the US dollar, the Japanese yen, and the euro and so on. It is contrast with the ECU case where the ECU consisted of intra-regional currencies.

We used the Generalized Purchasing Power Parity (G-PPP) model to investigate possibilities of a common currency area for some of East Asian countries in terms of a long-run stable linear combination among some regional currencies. The analytical results imply that the ASEAN5 countries, China, and Korea will be candidates for a common currency area with a common currency basket as an anchor currency. Also, we have a conclusion that a common currency basket is more applicable for an anchor currency than the US dollar in forming a common currency area in the region.

However, it may be questionable to establish a currency union in East Asian region in the near future. We can point out that possibilities of regional policy coordination depend on consensus of policy objectives among the governments of East Asian countries. Needless to say, the monetary authorities have to intend to make regional policy coordination as a premise that they create a common currency area. It is difficult for them to make regional policy coordination unless they have common policy objectives. Especially, it is important that they have common objectives in monetary and exchange rate policies in order to create a common currency area.

Appendix:

The cointegration analysis is a very useful tool to investigate the dynamic path of the multiple economic variables. However, it is susceptible (subject) to criticism

regarding the robustness of the test results. Namely, the number of cointegration relationships (the cointegration rank) sometimes varies with the lag order of the underlying vector-autoregressive model. If the rank condition is variable, we have a lot of possibilities to identify equilibrium among variables. That is, two issues: whether or not the long run relationship among variables can be present in the data and which equilibrium has more important implication for economics, depend on our choice of the lag order. Therefore, we need to carefully identify the appropriate error correction model before conducting the Johansen test.

In this paper, we provisionally introduce additional 8 tests into Johansen cointegration analysis to solve "the dilemma" problem. The point is that we choose the lag order of error correction model considering the appropriate equilibriums and elements in matrix Π. In other words, we first investigate an appropriate equilibrium of those variables, and test whether that equilibrium and the resultant error correction model satisfy the several assumptions of the Johansen test. Our assumptions are that (1) there is no serial correlation in residuals of the VAR models, (2) each variable could be included in the long run relationship, (3) each variable is nonstationary, and (4) each variable is an endogenous variable in their relationship. If we could find the true data generating process between variables, and it has a long run equilibrium to converge, that model must fulfill all our assumptions of the cointegration analysis. In the case that there is no equilibrium that meets our assumptions, we can recognize that there is no long-run relationship at all between variables, and the cointegration rank must be zero. Depending upon the lag order, we may encounter conflicting results: one result is that there is at least one cointegration and the other is that there is no cointegration, but in both instances the assumptions of the Johansen procedure are satisfied. To choose between the two, we examine the fitness of the alternative models by applying the conventional information criteria. Our empirical strategy is as follows.

Prior to cointegration analysis, we have to confirm whether or not each variable has a unit root and is nonstationary. In some cases, stationary series can be included in cointegration relationship or error correction model. But in our G-PPP model, we assume all variables to be nonstationary.

(Step 1) We conduct the Johansen test for VAR models. Here, we conduct the tests for the 11 sets of error correction model with lag order from 2 to 12 per one linear combination of variables and varied the sample period to equalize the degree of freedom in each of the 12 models. We assume that maximum lag order effecting on the equilibrium is 12 in the true data generating process. This assumption can easily be changed.

(Step 2) Next, we calculate three test statistics for residuals: multivariate Ljung-Box test based on the estimated auto- and cross-correlations of the first quarter number of lags of all sample periods, Lagrange-Multiplier type tests for first and fourth order autocorrelations. The residuals of VAR or error correction model are assumed to have no serial correlation. Therefore, we exclude the cases where the assumption is not met regardless of whether cointegration rank is zero or not.

Here, we gather the cases which validate the assumption of no serial correlations in residuals. We can divide those models into a group of no cointegration rank and that of more than one. If there are some cases that cointegration rank is more than one, which means there are more equilibria between variables, we have to conduct the further tests for these cases.

(Step 3) We conduct three kinds of chi-square-based tests for the cases which have equilibrium. Usually, these tests are used for identifying the equilibrium. We use these tests not only to identify the equilibrium but also to choose a proper lag order. The first test is to find variables than can be excluded from the long run relationship in the cointegrating vector R. The null hypothesis in this test is $\beta_{ij} = 0$. If the null is accepted and the test statistic is asymptotically distributed as chi-square with r degrees of freedom, it might mean the possibilities that some relevant variables are missing from the cointegration relationship. In the case of strong multicollinearity, we will also get an insignificant test value. The second test is about stationarity. This test is to check whether the individual series can be stationary by themselves. The null is $\beta = (H_i, \varphi)$. If the null is accepted and the test statistic is asymptotically distributed as chi-square with r degrees of freedom, it might mean the possibility that the variable will be excluded from the cointegration relationship; therefore we can identify the minimal set of variables that comprise the long-run equilibrium relationship. The last is to test whether any of the elements in the vector R can be considered as weakly exogenous for the long run equilibrium. The null hypothesis is $\alpha_{ij} = 0$. In the case of accepting the null and asymptotically distributed as chi-square with r degrees of freedom, that variable might be a weakly exogenous series for the long rung equilibrium, therefore, we can exclude such cases.

If all three tests are passed here, we can find the minimum set of variables in the long-run equilibrium. Therefore, for most cases, we can identify optimal error correction model with proper lags and appropriate equilibrium to converge. We can call this the "Best fitting model". If we cannot find any cases which satisfy the three tests, we should focus on the second best case. We regard the second best cases to be those which meet the stationarity test, but fail to pass the other two tests. We should not jump to a

conclusion of no linear long-run equilibrium. The first and third tests are very helpful for us because these tests can detect the possibilities of over-identification or under-identification of model not only for the minimum set of variables but also for the proper lag length. When we wrongly increase the lag length or erroneously determine the rank, test statistics suddenly show the possibilities of accepting the null. On the other hand, we may be able to find some other exogenous variables to form a long-run equilibrium relationship as an exogenous variable. Therefore, we have to carefully look into a second best. Here, we only focus on the cases in which at least two variables in the vector can be rejected the null of long-run exclusion and weak exogeneity because it is not important to think that only one endogenous variable with several exogenous variables can converge to long run equilibrium in a common currency area or G-PPP model.

(Step 4) We compare all possible models in terms of the fitness of true data generating process. This step is helpful to avoid the arbitrariness to choose a model in final step. In step 3, we may not be able to find the best case and may have to look for second best cases. It is true that the first test and the third one indicate the possibility of over- or under-identification of model, but we cannot fully identify it. It means that we cannot recognize whether or not that model is more suitable than other. Therefore, in the final step, we use information criterion to choose proper or fitting model for data generating process. According to these steps, we can identify the unique model and equilibrium.

§Choosing the lag order of ECM.

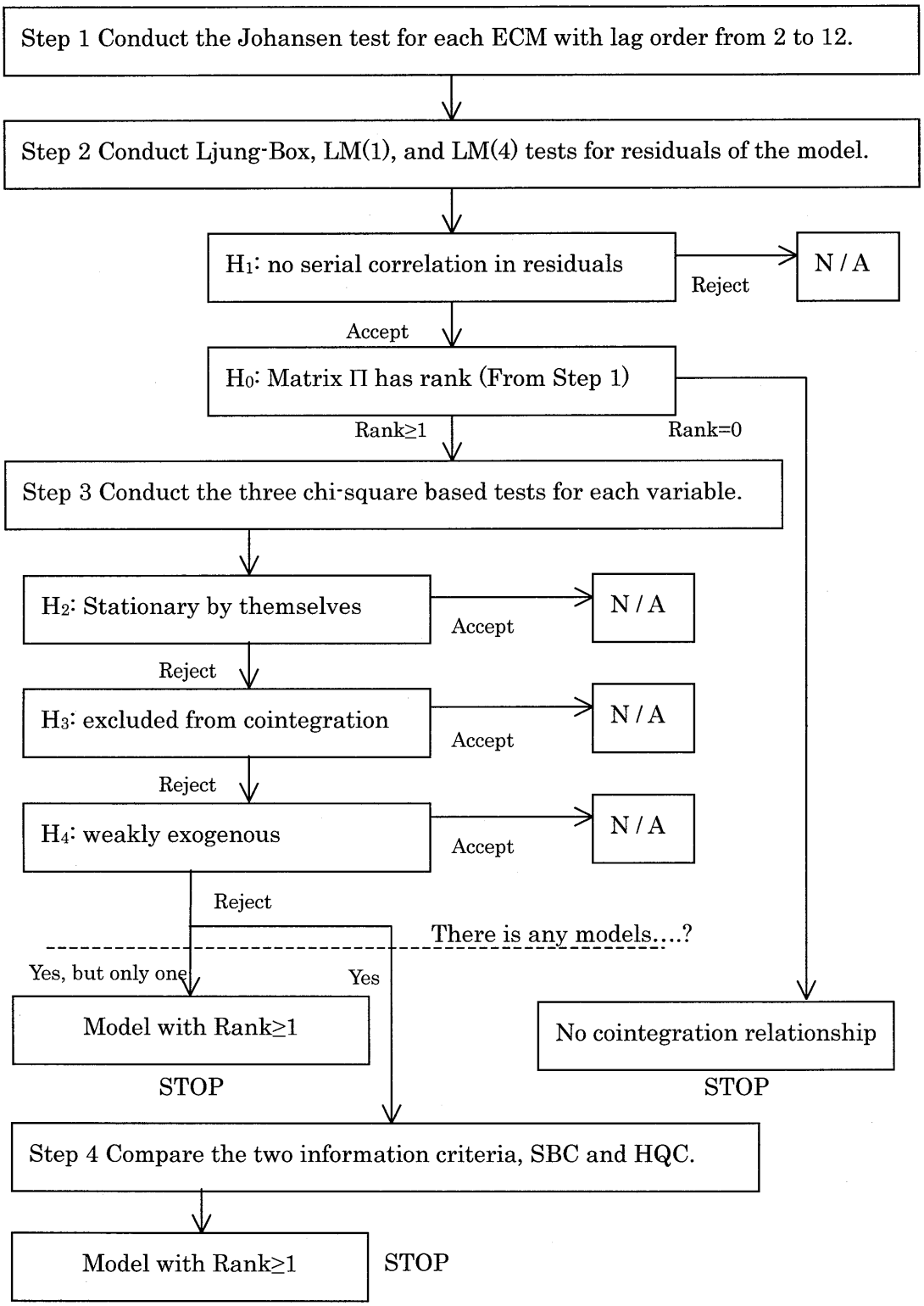

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Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value

Combination	l	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB301	Rank(s)	1		2		2		2		2		2		2		3		3		3		3	
	SBC	- 26.30655		- 26.02211		- 25.57842		- 25.2635		- 25.08328		- 24.83925		- 24.57909		- 22.0531		- 21.65163		- 21.3384		- 21.20089	
	HQC	- 26.56769		- 26.40715		- 26.08327		- 25.88431		- 25.8164		- 25.68124		- 25.5267		- 23.10326		- 22.8014		- 22.585		- 22.54169	
	LB	200.08	0.88 *	187.065	0.97	190.079	0.96	180.146	0.99	187.338	0.92 *	200.082	0.77 *	226.51	0.30 *	202.058	0.74 *	195.316	0.71 *	199.541	0.63 *	213.492	0.36 *
	LM(1)	10.917	0.28 *	7.843	0.55 *	11.929	0.22 *	14.979	0.09 *	5.764	0.76 *	4.641	0.86 *	15.932	0.07 *	23.346	0.01	15.025	0.09 *	9.056	0.43 *	2.555	0.98
	LM(4)	7.857	0.55 *	7.514	0.58 *	7.558	0.58 *	5.43	0.80 *	4.526	0.87 *	2.422	0.98	3.031	0.96	14.814	0.10 *	10.378	0.32 *	11.722	0.23 *	12.255	0.20 *
CB302	Rank(s)	1		1		2		1		1		1		1		2		1		3		3	
	SBC	- 25.55626		- 25.28664		- 24.87662		- 24.60523		- 24.36921		- 24.1283		- 23.91562		- 23.74029		- 23.46218		- 23.19451		- 23.07647	
	HQC	- 25.8174		- 25.67168		- 25.38147		- 25.22604		- 25.10233		- 24.9703		- 24.86323		- 24.79044		- 24.61195		- 24.44112		- 24.41727	
	LB	235.765	0.30 *	227.582	0.44 *	220.555	0.57 *	210.456	0.75 *	210.856	0.59 *	217.145	0.47 *	234.298	0.19 *	227.352	0.28 *	234.959	0.09 *	242.172	0.05	250.457	0.02
	LM(1)	9.976	0.35 *	1.555	1.00	10.849	0.29 *	11.046	0.27 *	10.279	0.33 *	7.532	0.58 *	9.448	0.40 *	7.104	0.63 *	14.137	0.12 *	10.465	0.31 *	3.248	0.95
	LM(4)	7.113	0.63 *	7.515	0.58 *	8.653	0.47 *	4.023	0.91 *	5.573	0.78 *	7.517	0.58 *	7.415	0.59 *	4.688	0.86 *	13.112	0.16 *	19.73	0.02	20.794	0.01
CB303	Rank(s)	0		1		1		1		1		1		0		1		1		3		3	
	SBC	- 25.54205		- 25.32782		- 25.00626		- 24.71327		- 24.53875		- 24.28897		- 23.90993		- 21.49685		- 21.12585		- 20.91282		- 20.79031	
	HQC	- 25.80319		- 25.71286		- 25.51111		- 25.33408		- 25.27187		- 25.13097		- 24.85755		- 22.547		- 22.27562		- 22.15942		- 22.13111	
	LB	210.643	0.75 *	214.735	0.68 *	213.837	0.69 *	196.165	0.92 *	204.35	0.70 *	223.28	0.35 *	235.29	0.18 *	184.721	0.94 *	188.811	0.81 *	182.937	0.88 *	192.977	0.75 *
	LM(1)	22.759	0.01	13.575	0.14 *	11.185	0.26 *	9.115	0.43 *	7.716	0.56 *	3.944	0.92 *	15.335	0.08 *	27.209	0.00	11.434	0.25 *	10.356	0.32 *	6.71	0.67 *
	LM(4)	10.668	0.30 *	7.428	0.59 *	6.393	0.70 *	3.689	0.93 *	9.897	0.36 *	17.185	0.05	18.723	0.03	35.134	0.00	20.405	0.02	10.866	0.28 *	3.714	0.93 *
CB304	Rank(s)	1		2		1		1		1		1		2		2		3		3		3	
	SBC	- 25.94663		- 25.73952		- 25.51406		- 25.19528		- 24.99124		- 24.74793		- 24.45813		- 22.09733		- 21.65077		- 21.36593		- 21.23605	
	HQC	- 26.20777		- 26.12456		- 26.01891		- 25.81608		- 25.72436		- 25.58993		- 25.40574		- 23.14748		- 22.80054		- 22.61254		- 22.57685	
	LB	240.703	0.23 *	234.395	0.32 *	236.064	0.29 *	227.757	0.44 *	223.9	0.34 *	225.055	0.32 *	251.713	0.05	204.643	0.70 *	187.671	0.83 *	190.636	0.79 *	201.698	0.59 *
	LM(1)	11.619	0.24 *	13.58	0.14 *	7.65	0.57 *	10.911	0.28 *	13.818	0.13 *	6.548	0.68 *	15.067	0.09 *	31.443	0.00	11.685	0.23 *	11.246	0.26 *	10.077	0.34 *
	LM(4)	10.822	0.29 *	8.186	0.52 *	6.488	0.69 *	4.068	0.91 *	2.635	0.98	4.023	0.91 *	4.01	0.91 *	28.703	0.00	27.343	0.00	10.643	0.30 *	7.646	0.57 *
CB305	Rank(s)	1		1		1		1		1		1		0		1		1		1		2	
	SBC	- 24.38363		- 24.10544		- 23.69557		- 23.4202		- 23.20206		- 22.96544		- 22.72242		- 22.60051		- 22.33773		- 21.85849		- 21.74346	
	HQC	- 24.64476		- 24.49048		- 24.20042		- 24.04101		- 23.93518		- 23.80743		- 23.67004		- 23.65067		- 23.4875		- 23.10509		- 23.08425	
	LB	246.407	0.16 *	230.886	0.38 *	225.698	0.47 *	228.131	0.43 *	225.256	0.32 *	228.313	0.27 *	243.499	0.10 *	236.153	0.17 *	232.963	0.10 *	242.525	0.05	245.471	0.03
	LM(1)	8.589	0.48 *	7.292	0.61 *	13.734	0.13 *	11.921	0.22 *	7.424	0.59 *	12.235	0.20 *	14.836	0.10 *	10.421	0.32 *	9.846	0.36 *	7.987	0.54 *	3.093	0.96
	LM(4)	6.565	0.68 *	6.075	0.73 *	6.553	0.68 *	7.982	0.54 *	5.239	0.81 *	4.994	0.83 *	8.382	0.50 *	6.146	0.73 *	6.022	0.74 *	11.365	0.25 *	14.325	0.11 *
CB306	Rank(s)	0		1		0		0		0		0		0		1		1		1		2	
	SBC	- 24.28551		- 24.03496		- 23.59499		- 23.3188		- 23.11343		- 22.92827		- 22.61406		- 20.54267		- 20.20887		- 19.70572		- 19.55851	
	HQC	- 24.54664		- 24.42		- 24.09984		- 23.9396		- 23.84655		- 23.77026		- 23.56167		- 21.59282		- 21.35864		- 20.95233		- 20.8993	
	LB	206.623	0.80 *	200.741	0.88 *	212.345	0.72 *	205.557	0.82 *	204.328	0.71 *	214.079	0.52 *	230.755	0.23 *	239.747	0.13 *	228.973	0.14 *	199.903	0.63 *	195.168	0.71 *
	LM(1)	10.108	0.34 *	3.291	0.95	12.885	0.17 *	6.584	0.68 *	7.154	0.62 *	5.018	0.83 *	8.873	0.45 *	10.96	0.28 *	6.213	0.72 *	3.842	0.92 *	2.618	0.98
	LM(4)	6.663	0.67 *	6.232	0.72 *	5.818	0.76 *	3.364	0.95	4.64	0.86 *	2.732	0.97	2.025	0.99	20.692	0.01	5.451	0.79 *	3.546	0.94 *	6.104	0.73 *
CB307	Rank(s)	0		0		0		0		0		0		0		1		1		1		3	
	SBC	- 24.61745		- 24.39936		- 24.09557		- 23.84373		- 23.57182		- 23.35482		- 23.12704		- 21.07399		- 20.61565		- 20.14379		- 20.00394	
	HQC	- 24.87859		- 24.7844		- 24.60042		- 24.46453		- 24.30493		- 24.19682		- 24.07466		- 22.12415		- 21.76542		- 21.39039		- 21.34473	
	LB	242.708	0.20 *	239.542	0.24 *	230.58	0.39 *	245.614	0.16 *	236.576	0.16 *	243.892	0.09 *	258.439	0.03	231.782	0.22 *	220.841	0.24 *	185.583	0.86 *	201.749	0.59 *
	LM(1)	5.079	0.83 *	10.693	0.30 *	8.691	0.47 *	3.164	0.96	10.667	0.30 *	10.41	0.32 *	7.1	0.63 *	23.978	0.00	12.982	0.16 *	6.798	0.66 *	2.894	0.97
	LM(4)	7.87	0.55 *	8.857	0.45 *	7.39	0.60 *	5.512	0.79 *	6.148	0.73 *	5.494	0.79 *	4.518	0.87 *	29.281	0.00	8.799	0.46 *	4.26	0.89 *	8.117	0.52 *
CB308	Rank(s)	0		1		0		0		0		0		0		0		0		1		2	
	SBC	- 23.57923		- 23.44844		- 23.03816		- 22.82953		- 22.64258		- 22.49226		- 22.33675		- 22.06888		- 21.86145		- 21.30828		- 21.16322	
	HQC	- 23.84037		- 23.83348		- 23.54301		- 23.45033		- 23.3757		- 23.33426		- 23.28436		- 23.11903		- 23.01122		- 22.55488		- 22.50402	
	LB	248.546	0.13 *	241.701	0.21 *	238.111	0.26 *	235.03	0.31 *	232.767	0.21 *	233.522	0.20 *	243.677	0.10 *	245.116	0.08 *	249.745	0.02	200.075	0.62 *	194.158	0.73 *
	LM(1)	23.482	0.01	5.421	0.80 *	15.02	0.09 *	12	0.21 *	15.094	0.09 *	14.489	0.11 *	5.799	0.76 *	10.02	0.35 *	8.466	0.49 *	11.295	0.26 *	10.018	0.35 *
	LM(4)	8.419	0.49 *	8.591	0.48 *	8.14	0.52 *	12.212	0.20 *	10.512	0.31 *	7.989	0.54 *	11.028	0.27 *	7.072	0.63 *	11.311	0.25 *	4.832	0.85 *	22.602	0.01
CB309	Rank(s)	0		0		0		0		0		0		0		1		1		3		3	
	SBC	- 24.17739		- 23.86726		- 23.55669		- 23.3771		- 23.16992		- 22.93875		- 22.78572		- 22.66301		- 22.39038		- 21.94188		- 21.77594	
	HQC	- 24.43853		- 24.2523		- 24.06154		- 23.9979		- 23.90304		- 23.78075		- 23.73334		- 23.71317		- 23.54015		- 23.18848		- 23.11674	
	LB	216.352	0.65 *	227.34	0.44 *	229.015	0.41 *	224.741	0.49 *	228.287	0.27 *	236.919	0.16 *	247.567	0.07 *	236.581	0.16 *	232.422	0.11 *	238.251	0.07 *	247.142	0.03
	LM(1)	3.695	0.93 *	6.42	0.70 *	13.976	0.12 *	9.067	0.43 *	7.432	0.59 *	5.213	0.82 *	15.84	0.07 *	9.177	0.42 *	8.869	0.45 *	12.486	0.19 *	2.817	0.97
	LM(4)	13.479	0.14 *	13.278	0.15 *	11.119	0.27 *	14.224	0.11 *	8.322	0.50 *	11.358	0.25 *	16.326	0.06 *	12	0.21 *	13.451	0.14 *	6.318	0.71 *	10.079	0.34 *
CB310	Rank(s)	0		0		1		0		1		1		2		2		2		3		3	
	SBC	- 24.00857		- 23.83301		- 23.57084		- 23.33423		- 23.10969		- 22.96425		- 22.64279		- 20.68321		- 20.25425		- 19.68834		- 19.52544	
	HQC	- 24.26971		- 24.21805		- 24.07569		- 23.95504		- 23.84281		- 23.80625		- 23.59041		- 21.73336		- 21.40402		- 20.93495		- 20.86624	
	LB	252.322	0.10 *	250.834	0.11 *	249.673	0.12 *	248.166	0.14 *	242.504	0.10 *	246.75	0.07 *	268.42	0.01	275.807	0.00	257.162	0.01	187.53	0.83 *	184.986	0.86 *
	LM(1)	14.638	0.10 *	11.624	0.24 *	13.117	0.16 *	9.137	0.42 *	12.592	0.18 *	8.176	0.52 *	15.043	0.09 *	15.454	0.08 *	9.269	0.41 *	9.332	0.41 *	5.565	0.78 *
	LM(4)	8.709	0.46 *	9.584	0.39 *	10.453	0.32 *	7.927	0.54 *	8.531	0.48 *	5.895	0.75 *	8.705	0.46 *	48.616	0.00	11.85	0.22 *	12.055	0.21 *	19.954	0.02

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 1)

Combination	I	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 ↑ 2	
CB311	Rank(s)	1		1		1		1		2		2		1		2		1		1		1	
	SBC	- 26.86311		- 26.61585		- 26.2211		- 25.92953		- 25.7919		- 25.57732		- 25.34849		- 25.17326		- 24.82226		- 24.53396		- 24.29211	
	HQC	- 27.12425		- 27.00089		- 26.72595		- 26.55034		- 26.52502		- 26.41932		- 26.29611		- 26.22342		- 25.97203		- 25.78056		- 25.63291	
	LB	234.589	0.32 *	236.387	0.29 *	226.31	0.46 *	232.799	0.35 *	218.902	0.43 *	231.855	0.22 *	239.021	0.14 *	240.107	0.12 *	230.004	0.13 *	234.579	0.09 *	238.728	0.06 *
	LM(1)	4.605	0.87 *	5.279	0.81 *	7.233	0.61 *	14.847	0.10 *	12.727	0.18 *	5.796	0.76 *	9.297	0.41 *	7.16	0.62 *	16.195	0.06 *	13.018	0.16 *	8.702	0.47 *
	LM(4)	9.479	0.39 *	7.166	0.62 *	5.884	0.75 *	5.198	0.82 *	8.695	0.47 *	4.514	0.87 *	4.743	0.86 *	9.267	0.41 *	7.641	0.57 *	12.894	0.17 *	19.123	0.02
CB312	Rank(s)	1		1		1		1		1		0		0		1		1		1		0	
	SBC	- 26.9343		- 26.66916		- 26.22152		- 25.95097		- 25.86946		- 25.58099		- 25.19396		- 22.55828		- 22.19756		- 21.9262		- 21.67796	
	HQC	- 27.19544		- 27.0542		- 26.72637		- 26.57177		- 26.60257		- 26.42298		- 26.14157		- 23.60844		- 23.34733		- 23.1728		- 23.01876	
	LB	220.627	0.57 *	222.998	0.53 *	238.789	0.25 *	235.42	0.30 *	233.451	0.20 *	231.584	0.22 *	243.792	0.09 *	196.01	0.83 *	191.04	0.78 *	195.586	0.70 *	196.362	0.69 *
	LM(1)	10.712	0.30 *	7.498	0.59 *	13.141	0.16 *	21.014	0.01	15.7	0.07 *	4.276	0.89 *	12.467	0.19 *	28.029	0.00	8.753	0.46 *	7.133	0.62 *	7.333	0.60 *
	LM(4)	10.101	0.34 *	8.886	0.45 *	6.798	0.66 *	19.878	0.02	12.592	0.18 *	5.12	0.82 *	4.063	0.91 *	26.474	0.00	14.567	0.10 *	4.646	0.86 *	4.849	0.85 *
CB313	Rank(s)	2		2		1		1		1		1		0		1		1		1		1	
	SBC	- 27.3033		- 27.03926		- 26.75471		- 26.45495		- 26.36467		- 26.0982		- 25.77958		- 23.17084		- 22.70242		- 22.37759		- 22.10962	
	HQC	- 27.56444		- 27.4243		- 27.25956		- 27.07576		- 27.09778		- 26.9402		- 26.7272		- 24.221		- 23.85218		- 23.6242		- 23.45042	
	LB	253.121	0.10 *	240.789	0.22 *	233.897	0.33 *	238.852	0.25 *	240.873	0.12 *	246.715	0.07 *	274.799	0.00	220.843	0.40 *	220.139	0.25 *	223.65	0.20 *	225.481	0.18 *
	LM(1)	5.496	0.79 *	12.808	0.17 *	10.73	0.29 *	19.894	0.02	6.873	0.65 *	5.292	0.81 *	18.073	0.03	36.314	0.00	18.608	0.03	11.769	0.23 *	13.628	0.14 *
	LM(4)	7.796	0.55 *	3.836	0.92 *	5.762	0.76 *	11.119	0.27 *	4.341	0.89 *	8.342	0.50 *	3.845	0.92 *	12.465	0.19 *	13.213	0.15 *	20.971	0.01	23.89	0.00
CB314	Rank(s)	0		1		0		0		0		0		0		0		0		1		1	
	SBC	- 26.06064		- 25.82489		- 25.44157		- 25.20344		- 25.01021		- 24.79024		- 24.5573		- 24.32118		- 24.06537		- 23.81763		- 23.62466	
	HQC	- 26.32178		- 26.20993		- 25.94642		- 25.82424		- 25.74333		- 25.63223		- 25.50492		- 25.37134		- 25.21514		- 25.06423		- 24.96545	
	LB	230.082	0.39 *	230.903	0.38 *	224.312	0.50 *	222.011	0.54 *	209.856	0.60 *	216.42	0.48 *	235.606	0.17 *	243.928	0.09 *	243.516	0.04	241.135	0.05	245.763	0.03
	LM(1)	18.411	0.03	5.227	0.81 *	11.733	0.23 *	11.432	0.25 *	11.362	0.25 *	7.064	0.63 *	4.27	0.89 *	6.972	0.64 *	7.085	0.63 *	5.213	0.82 *	3.945	0.91 *
	LM(4)	10.548	0.31 *	10.033	0.35 *	5.983	0.74 *	7.09	0.63 *	8.916	0.45 *	8.856	0.45 *	14.138	0.12 *	13.065	0.16 *	6.003	0.74 *	10.827	0.29 *	12.193	0.20 *
CB315	Rank(s)	0		2		1		0		1		1		1		1		2		2		1	
	SBC	- 26.50662		- 26.32663		- 26.02684		- 25.77954		- 25.63794		- 25.40343		- 25.18795		- 24.98969		- 24.66407		- 24.45486		- 24.08122	
	HQC	- 26.76776		- 26.71167		- 26.53169		- 26.40035		- 26.37106		- 26.24542		- 26.13557		- 26.03984		- 25.81384		- 25.70146		- 25.42201	
	LB	242.951	0.20 *	225.977	0.47 *	223.299	0.52 *	232.091	0.36 *	224.105	0.34 *	224.912	0.32 *	232.523	0.21 *	234.795	0.18 *	228.351	0.15 *	238.658	0.06 *	244.455	0.04
	LM(1)	8.151	0.52 *	6.014	0.74 *	11.102	0.27 *	16.089	0.07 *	11.122	0.27 *	11.922	0.22 *	3.814	0.92 *	9.67	0.38 *	21.33	0.01	9.48	0.39 *	8.995	0.44 *
	LM(4)	16.053	0.07 *	10.885	0.28 *	11.055	0.27 *	9.019	0.44 *	5.217	0.82 *	10.488	0.31 *	12.127	0.21 *	5.754	0.76 *	10.376	0.32 *	13.428	0.14 *	18.524	0.03
CB316	Rank(s)	0		0		0		0		1		1		2		1		1		2		2	
	SBC	- 26.49204		- 26.30568		- 26.02293		- 25.75229		- 25.69648		- 25.42556		- 25.11278		- 22.53181		- 22.20025		- 21.92444		- 21.6611	
	HQC	- 26.75318		- 26.69072		- 26.52778		- 26.37309		- 26.4296		- 26.26755		- 26.06039		- 23.58196		- 23.35001		- 23.17104		- 23.0019	
	LB	254.687	0.08 *	252.831	0.10 *	250.697	0.12 *	247.507	0.14 *	243.937	0.09 *	229.877	0.25 *	254.742	0.04	216.192	0.48 *	216.475	0.31 *	190.219	0.79 *	198.378	0.65 *
	LM(1)	14.912	0.09 *	10.821	0.29 *	14.419	0.11 *	24.458	0.00	19.262	0.02	11.881	0.22 *	12.136	0.21 *	10.799	0.29 *	16.589	0.06 *	4.766	0.85 *	7.755	0.56 *
	LM(4)	12.346	0.19 *	10.536	0.31 *	8.842	0.45 *	6.616	0.68 *	11.683	0.23 *	12.081	0.21 *	18.725	0.03	18.164	0.03	21.146	0.01	12.825	0.17 *	11.235	0.26 *
CB317	Rank(s)	0		0		0		0		0		0		0		0		0		0		1	
	SBC	- 24.7636		- 24.43655		- 24.0503		- 23.86486		- 23.6728		- 23.43015		- 23.21492		- 23.02653		- 22.83807		- 22.3752		- 22.18111	
	HQC	- 25.02474		- 24.82159		- 24.55515		- 24.48567		- 24.40592		- 24.27215		- 24.16253		- 24.07669		- 23.98784		- 23.6218		- 23.52191	
	LB	212.631	0.71 *	222.019	0.54 *	220.714	0.57 *	216.081	0.65 *	208.195	0.64 *	221.363	0.39 *	240.317	0.12 *	237.993	0.15 *	245.774	0.03	240.634	0.05	230.969	0.12 *
	LM(1)	5.651	0.77 *	3.144	0.96	14.297	0.11 *	8.206	0.51 *	7.765	0.56 *	5.559	0.78 *	3.374	0.95	8.742	0.46 *	10.056	0.35 *	11.084	0.27 *	3.322	0.95
	LM(4)	12.472	0.19 *	10.863	0.29 *	9.78	0.37 *	5.472	0.79 *	4.852	0.85 *	4.139	0.90 *	4.465	0.88 *	2.759	0.97	3.267	0.95	1.871	0.99	5.008	0.83 *
CB318	Rank(s)	0		0		0		0		0		0		0		0		0		1		2	
	SBC	- 25.16452		- 24.90227		- 24.588		- 24.37509		- 24.20485		- 23.97791		- 23.73429		- 23.59514		- 23.21161		- 22.85211		- 22.64696	
	HQC	- 25.42566		- 25.28731		- 25.09285		- 24.9959		- 24.93797		- 24.81991		- 24.68191		- 24.64529		- 24.36138		- 24.09871		- 23.98776	
	LB	256.845	0.07 *	255.464	0.08 *	236.752	0.28 *	247.243	0.15 *	236.022	0.17 *	229.693	0.25 *	249.787	0.06 *	252.702	0.04	242.808	0.04	252.681	0.02	252.812	0.02
	LM(1)	2.657	0.98	7.797	0.55 *	11.75	0.23 *	12.058	0.21 *	10.099	0.34 *	7.512	0.58 *	11.946	0.22 *	8.711	0.46 *	22.558	0.01	11.806	0.22 *	6.58	0.68 *
	LM(4)	12.862	0.17 *	9.844	0.36 *	8.899	0.45 *	9.649	0.38 *	6.387	0.70 *	2.776	0.97	4.309	0.89 *	8.944	0.44 *	12.018	0.21 *	12.499	0.19 *	10.033	0.35 *
CB319	Rank(s)	0		0		0		0		0		0		0		1		0		0		0	
	SBC	- 25.15832		- 24.96748		- 24.63942		- 24.39427		- 24.30467		- 24.06781		- 23.76789		- 21.39938		- 20.9857		- 20.43327		- 20.22732	
	HQC	- 25.41946		- 25.35252		- 25.14427		- 25.01507		- 25.03778		- 24.9098		- 24.7155		- 22.44954		- 22.13547		- 21.67987		- 21.56812	
	LB	267.921	0.03	268.038	0.03	269.062	0.02	271.288	0.02	265.075	0.01	259.283	0.02	267.454	0.01	253.791	0.04	245.728	0.03	198.337	0.66 *	199.477	0.63 *
	LM(1)	9.111	0.43 *	8.782	0.46 *	15.334	0.08 *	24.215	0.00	13.537	0.14 *	7.697	0.56 *	9.317	0.41 *	22.824	0.01	5.263	0.81 *	7.97	0.54 *	4.556	0.87 *
	LM(4)	11.395	0.25 *	7.628	0.57 *	8.471	0.49 *	13.742	0.13 *	11.573	0.24 *	7.099	0.63 *	1.985	0.99	34.738	0.00	5.12	0.82 *	3.467	0.94 *	8.928	0.44 *
CB320	Rank(s)	0		0		0		0		0		1		1		1		1		1		1	
	SBC	- 24.50918		- 24.32937		- 24.00059		- 23.8152		- 23.69505		- 23.49339		- 23.35779		- 23.09416		- 22.8869		- 22.3925		- 22.18644	
	HQC	- 24.77032		- 24.71441		- 24.50544		- 24.436		- 24.42817		- 24.33538		- 24.3054		- 24.14431		- 24.03667		- 23.6391		- 23.52724	
	LB	276.123	0.01	281.565	0.01	283.847	0.00	278.554	0.01	279.86	0.00	276.14	0.00	273.777	0.00	281.608	0.00	267.042	0.00	230.1	0.13 *	214.019	0.35 *
	LM(1)	13.782	0.13 *	6.605	0.68 *	17.172	0.05	12.059	0.21 *	15.464	0.08 *	17.816	0.04	7.177	0.62 *	17.475	0.04	18.733	0.03	17.595	0.04	6.072	0.73 *
	LM(4)	9.632	0.38 *	10.346	0.32 *	8.733	0.46 *	15.164	0.09 *	21.712	0.01	11.017	0.27 *	10.112	0.34 *	9.448	0.40 *	18.677	0.03	6.487	0.69 *	11.099	0.27 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 2)

Combination	I	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB321	Rank(s)	0		0		0		0		0		0		0		2		1		3		3	
	SBC	- 22.49831		- 22.22644		- 21.90318		- 21.76288		- 21.59011		- 21.36028		- 21.16177		- 20.84794		- 20.69701		- 20.22323		- 20.06208	
	HQC	- 22.75945		- 22.61148		- 22.40803		- 22.38368		- 22.32323		- 22.20227		- 22.10939		- 21.8981		- 21.84678		- 21.46983		- 21.40288	
	LB	247.713	0.14 *	251.883	0.11 *	258.199	0.06 *	249.751	0.12 *	241.705	0.11 *	251.008	0.05	255.32	0.03	260.606	0.02	255.889	0.01	229.081	0.14 *	224.989	0.19 *
	LM(1)	4.473	0.88 *	4.081	0.91 *	17.656	0.04	8.392	0.50 *	7.506	0.58 *	8.968	0.44 *	3.669	0.93 *	12.291	0.20 *	9.943	0.36 *	14.113	0.12 *	4.76	0.85 *
	LM(4)	16.448	0.06 *	14.193	0.12 *	13.085	0.16 *	4.35	0.89 *	7.655	0.57 *	17.923	0.04	13.049	0.16 *	13.294	0.15 *	15.736	0.07 *	12.84	0.17 *	13.141	0.16 *
CB322	Rank(s)	0		1		1		0		0		0		0		3		1		2		1	
	SBC	- 23.98545		- 23.75795		- 23.46034		- 23.27388		- 23.14367		- 22.90096		- 22.68179		- 22.37368		- 22.10162		- 21.78561		- 21.53253	
	HQC	- 24.24659		- 24.14299		- 23.9652		- 23.89468		- 23.87679		- 23.74295		- 23.62941		- 23.42384		- 23.25139		- 23.03221		- 22.87333	
	LB	232.397	0.35 *	233.255	0.34 *	239.979	0.24 *	237.488	0.27 *	233.421	0.20 *	241.182	0.12 *	243.269	0.10 *	240.707	0.12 *	242.384	0.05	235.022	0.09 *	230.166	0.13 *
	LM(1)	9.777	0.37 *	4.52	0.87 *	14.581	0.10 *	15.301	0.08 *	9.719	0.37 *	10.218	0.33 *	4.135	0.90 *	8.461	0.49 *	8.902	0.45 *	9.966	0.35 *	8.122	0.52 *
	LM(4)	9.25	0.41 *	8.522	0.48 *	8.983	0.44 *	11.495	0.24 *	8.993	0.44 *	5.868	0.75 *	9.884	0.36 *	8.828	0.45 *	10.809	0.29 *	8.061	0.53 *	8.431	0.49 *
CB323	Rank(s)	0		0		0		0		0		0		0		1		1		1		1	
	SBC	- 24.4174		- 24.17463		- 23.83516		- 23.5516		- 23.50716		- 23.24024		- 22.95417		- 20.36065		- 19.99594		- 19.70458		- 19.4986	
	HQC	- 24.67854		- 24.55968		- 24.34001		- 24.1724		- 24.24028		- 24.08223		- 23.90179		- 21.41081		- 21.1457		- 20.95118		- 20.8394	
	LB	224.346	0.50 *	224.561	0.50 *	239.57	0.24 *	249.845	0.12 *	235.035	0.18 *	242.865	0.10 *	272.291	0.01	188.202	0.91 *	176.786	0.94 *	176.783	0.94 *	182.225	0.89 *
	LM(1)	7.292	0.61 *	3.896	0.92 *	10.406	0.32 *	22.826	0.01	13.447	0.14 *	9.85	0.36 *	8.905	0.45 *	29.536	0.00	4.087	0.91 *	6.741	0.66 *	4.809	0.85 *
	LM(4)	7.205	0.62 *	5.311	0.81 *	5.144	0.82 *	5.344	0.80 *	6.27	0.71 *	6.356	0.70 *	6.331	0.71 *	21.732	0.01	22.745	0.01	14.124	0.12 *	7.674	0.57 *
CB324	Rank(s)	0		0		0		0		0		0		0		0		2		2		2	
	SBC	- 24.47274		- 24.21872		- 23.93141		- 23.66685		- 23.50556		- 23.25464		- 23.06811		- 22.79274		- 22.42124		- 22.26605		- 21.95524	
	HQC	- 24.73388		- 24.60376		- 24.43626		- 24.28765		- 24.23868		- 24.09664		- 24.01573		- 23.84289		- 23.57101		- 23.51265		- 23.29604	
	LB	199.503	0.89 *	203.899	0.84 *	202.455	0.86 *	216.556	0.64 *	202.698	0.73 *	199.114	0.79 *	206.908	0.66 *	217.037	0.47 *	214.163	0.35 *	225.241	0.18 *	243.631	0.04
	LM(1)	9.897	0.36 *	4.873	0.85 *	8.555	0.48 *	10.026	0.35 *	6.989	0.64 *	10.194	0.33 *	11.215	0.26 *	8.621	0.47 *	24.93	0.00	11.161	0.26 *	12.256	0.20 *
	LM(4)	9.192	0.42 *	7.84	0.55 *	7.12	0.62 *	4.302	0.89 *	4.648	0.86 *	13.31	0.15 *	11.439	0.25 *	17.267	0.04	12.827	0.17 *	9.118	0.43 *	18.065	0.03
CB325	Rank(s)	0		0		0		0		0		0		0		0		1		2		2	
	SBC	- 24.03942		- 23.66255		- 23.29545		- 23.08209		- 22.87697		- 22.62856		- 22.41453		- 22.09609		- 21.90285		- 21.67961		- 21.44481	
	HQC	- 24.30056		- 24.04759		- 23.8003		- 23.70289		- 23.61009		- 23.47056		- 23.36215		- 23.14625		- 23.05262		- 22.92621		- 22.78561	
	LB	177.226	0.99	193.919	0.93 *	205.834	0.82 *	212.455	0.72 *	199.201	0.79 *	200.195	0.77 *	205.568	0.68 *	199.412	0.78 *	213.845	0.36 *	232.79	0.11 *	230.036	0.13 *
	LM(1)	2.686	0.98	4.518	0.87 *	11.594	0.24 *	7.573	0.58 *	4.73	0.86 *	7.645	0.57 *	7.011	0.64 *	11.058	0.27 *	8.223	0.51 *	4.875	0.85 *	4.063	0.91 *
	LM(4)	9.192	0.42 *	9.485	0.39 *	6.548	0.68 *	2.222	0.99	8.681	0.47 *	12.486	0.19 *	6.295	0.71 *	7.89	0.55 *	4.551	0.87 *	5.192	0.82 *	7.831	0.55 *
CB326	Rank(s)	0		0		0		0		0		0		1		1		1		1		2	
	SBC	- 21.80213		- 21.54757		- 21.29313		- 21.12148		- 20.97835		- 20.72914		- 20.5382		- 20.20906		- 19.94474		- 19.42905		- 19.30337	
	HQC	- 22.06327		- 21.93261		- 21.79798		- 21.74229		- 21.71147		- 21.57114		- 21.48582		- 21.25922		- 21.09451		- 20.67565		- 20.64417	
	LB	223.964	0.51 *	233.75	0.33 *	245.382	0.17 *	237.508	0.27 *	230.385	0.24 *	246.941	0.07 *	261.53	0.02	270.98	0.01	268.419	0.00	234.354	0.09 *	212.102	0.39 *
	LM(1)	6.962	0.64 *	7.155	0.62 *	13.112	0.16 *	8.574	0.48 *	7.763	0.56 *	6.099	0.73 *	4.689	0.86 *	8.023	0.53 *	13.471	0.14 *	8.762	0.46 *	6.763	0.66 *
	LM(4)	8.162	0.52 *	7.66	0.57 *	7.093	0.63 *	7.301	0.61 *	8.266	0.51 *	6.361	0.70 *	12.39	0.19 *	8.764	0.46 *	7.696	0.57 *	5.633	0.78 *	13.732	0.13 *
CB327	Rank(s)	0		0		0		0		0		0		0		1		1		1		1	
	SBC	- 21.93646		- 21.67933		- 21.40796		- 21.1821		- 20.97576		- 20.78087		- 20.54331		- 18.83803		- 18.51842		- 18.02357		- 17.85323	
	HQC	- 22.1976		- 22.06437		- 21.91281		- 21.80291		- 21.70888		- 21.62286		- 21.49093		- 19.88819		- 19.66819		- 19.27017		- 19.19403	
	LB	232.45	0.35 *	234.212	0.32 *	246.47	0.16 *	242.74	0.20 *	245.396	0.08 *	265.253	0.01	290.278	0.00	266.353	0.01	246.7	0.03	193.829	0.74 *	184.729	0.87 *
	LM(1)	6.094	0.73 *	7.34	0.60 *	7.895	0.54 *	2.301	0.99	8.179	0.52 *	4.017	0.91 *	3.907	0.92 *	15.115	0.09 *	7.462	0.59 *	8.219	0.51 *	9.533	0.39 *
	LM(4)	9.962	0.35 *	9.931	0.36 *	8.131	0.52 *	4.712	0.86 *	6.669	0.67 *	5.056	0.83 *	4.397	0.88 *	15.484	0.08 *	17.13	0.05	6.457	0.69 *	16.172	0.06 *
CB328	Rank(s)	0		0		0		0		0		0		0		0		0		1		1	
	SBC	- 22.23892		- 21.95396		- 21.6086		- 21.37983		- 21.14627		- 20.88846		- 20.69681		- 20.36491		- 20.14414		- 19.68739		- 19.5622	
	HQC	- 22.50006		- 22.339		- 22.11345		- 22.00063		- 21.87939		- 21.73045		- 21.64443		- 21.41506		- 21.29391		- 20.93399		- 20.903	
	LB	198.208	0.90 *	201.52	0.87 *	203.699	0.84 *	211.892	0.73 *	216.625	0.48 *	224.224	0.34 *	235.135	0.18 *	247.92	0.07 *	239.011	0.06 *	229.337	0.14 *	229.512	0.14 *
	LM(1)	5.225	0.81 *	3.169	0.96	9.594	0.38 *	2.634	0.98	4.893	0.84 *	8.442	0.49 *	3.337	0.95	14.979	0.09 *	10.869	0.28 *	12.647	0.18 *	7.859	0.55 *
	LM(4)	9.3	0.41 *	10.205	0.33 *	8.607	0.47 *	2.785	0.97	3.382	0.95	8.272	0.51 *	5.613	0.78 *	14.185	0.12 *	13.233	0.15 *	4.904	0.84 *	9.032	0.43 *
CB329	Rank(s)	0		1		0		0		0		0		0		0		0		1		0	
	SBC	- 21.73804		- 21.43148		- 21.08876		- 20.88766		- 20.66847		- 20.41203		- 20.22697		- 19.89323		- 19.78853		- 19.30814		- 19.18303	
	HQC	- 21.99918		- 21.81652		- 21.59361		- 21.50847		- 21.40158		- 21.25402		- 21.17459		- 20.94339		- 20.9383		- 20.55474		- 20.52383	
	LB	226.608	0.46 *	227.897	0.43 *	235.677	0.30 *	232.309	0.35 *	231.478	0.22 *	234.002	0.19 *	241.756	0.11 *	244.708	0.09 *	242.618	0.05	218.908	0.27 *	212.906	0.37 *
	LM(1)	6.103	0.73 *	6.543	0.68 *	8.454	0.49 *	5.456	0.79 *	4.535	0.87 *	10.142	0.34 *	1.874	0.99	19.478	0.02	8.119	0.52 *	9.163	0.42 *	10.13	0.34 *
	LM(4)	8.988	0.44 *	8.652	0.47 *	8.943	0.44 *	4.53	0.87 *	6.474	0.69 *	16.822	0.05	7.571	0.58 *	6.985	0.64 *	12.591	0.18 *	7.205	0.62 *	20.268	0.02
CB330	Rank(s)	0		0		1		0		0		0		3		2		2		2		2	
	SBC	- 23.37215		- 23.11178		- 22.86879		- 22.69108		- 22.48676		- 22.28024		- 21.89914		- 19.94073		- 19.56911		- 19.31423		- 19.11534	
	HQC	- 23.63329		- 23.49682		- 23.37364		- 23.31188		- 23.21988		- 23.12223		- 22.84675		- 20.99088		- 20.71888		- 20.56084		- 20.45613	
	LB	214.863	0.67 *	218.383	0.61 *	233.305	0.34 *	239.009	0.25 *	233.07	0.20 *	233.511	0.20 *	273.698	0.00	175.407	0.98	164.119	0.99	176.379	0.94 *	176.926	0.94 *
	LM(1)	7.177	0.62 *	6.703	0.67 *	16.258	0.06 *	10.704	0.30 *	10.088	0.34 *	8.359	0.50 *	23.185	0.01	12.055	0.21 *	6.257	0.71 *	3.093	0.96	6.994	0.64 *
	LM(4)	12.201	0.20 *	12.076	0.21 *	10.197	0.33 *	3.525	0.94 *	4.907	0.84 *	3.842	0.92 *	3.991	0.91 *	17.082	0.05	12.521	0.19 *	5.969	0.74 *	11.799	0.22 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 3)

Combination	l	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB331	Rank(s)	0		1		0		0		0		0		0		0		3		3		2	
	SBC	- 23.61952		- 23.31798		- 23.02328		- 22.82266		- 22.65173		- 22.35458		- 22.18102		- 21.90107		- 21.62268		- 21.43095		- 21.24743	
	HQC	- 23.88066		- 23.70302		- 23.52813		- 23.44347		- 23.38485		- 23.19657		- 23.12864		- 22.95123		- 22.77245		- 22.67756		- 22.58822	
	LB	204.936	0.83 *	205.547	0.82 *	212.978	0.71 *	224.248	0.50 *	216.268	0.48 *	225	0.32 *	236.217	0.16 *	223.862	0.34 *	219.252	0.27 *	224.542	0.19 *	231.506	0.12 *
	LM(1)	6.515	0.69 *	4.435	0.88 *	11.679	0.23 *	12.515	0.19 *	6.954	0.64 *	9.182	0.42 *	7.153	0.62 *	4.12	0.90 *	14.655	0.10 *	9.095	0.43 *	6.097	0.73 *
	LM(4)	11.926	0.22 *	10.144	0.34 *	9.199	0.42 *	8.049	0.53 *	10.753	0.29 *	7.475	0.59 *	6.639	0.67 *	6.491	0.69 *	7.917	0.54 *	9.546	0.39 *	3.735	0.93 *
CB332	Rank(s)	0		1		1		0		0		0		0		0		0		1		1	
	SBC	- 22.9657		- 22.72878		- 22.40328		- 22.19423		- 22.01719		- 21.77713		- 21.53975		- 21.20622		- 20.96274		- 20.72388		- 20.58854	
	HQC	- 23.22684		- 23.11382		- 22.90813		- 22.81504		- 22.7503		- 22.61912		- 22.48737		- 22.25638		- 22.11251		- 21.97049		- 21.92934	
	LB	220.046	0.58 *	210.516	0.75 *	209.118	0.77 *	197.709	0.91 *	192.39	0.87 *	203.373	0.72 *	209.107	0.62 *	211.298	0.58 *	216.758	0.31 *	227.095	0.16 *	236.949	0.08 *
	LM(1)	18.558	0.03	8.907	0.45 *	11.829	0.22 *	10.656	0.30 *	7.643	0.57 *	9.32	0.41 *	4.98	0.84 *	9.12	0.43 *	5.846	0.76 *	9.998	0.35 *	3.629	0.93 *
	LM(4)	9.843	0.36 *	8.983	0.44 *	8.752	0.46 *	8.592	0.48 *	4.098	0.90 *	12.456	0.19 *	14.712	0.10 *	11.775	0.23 *	16.298	0.06 *	7.332	0.60 *	9.921	0.36 *
CB333	Rank(s)	0		0		0		0		0		0		0		1		1		1		1	
	SBC	- 23.87591		- 23.61285		- 23.33068		- 23.07502		- 22.86421		- 22.61437		- 22.33252		- 20.12449		- 19.70322		- 19.39157		- 19.27548	
	HQC	- 24.13705		- 23.99789		- 23.83553		- 23.69583		- 23.59733		- 23.45636		- 23.28014		- 21.17465		- 20.85298		- 20.63817		- 20.61627	
	LB	204.354	0.83 *	201.116	0.87 *	198.976	0.89 *	204.92	0.83 *	198.081	0.80 *	203.723	0.72 *	229.855	0.25 *	174.663	0.98	164.982	0.99	169.04	0.98	170.54	0.97
	LM(1)	4.344	0.89 *	4.512	0.87 *	6.258	0.71 *	6.563	0.68 *	4.797	0.85 *	6.359	0.70 *	7.064	0.63 *	29.224	0.00	11.932	0.22 *	12.403	0.19 *	10.148	0.34 *
	LM(4)	7.624	0.57 *	8.277	0.51 *	6.431	0.70 *	3.218	0.96	6.477	0.69 *	11.91	0.22 *	7.687	0.57 *	16.6	0.06 *	16.593	0.06 *	6.929	0.64 *	11.894	0.22 *
CB334	Rank(s)	0		1		0		0		0		0		0		1		1		1		2	
	SBC	- 23.50074		- 23.19677		- 22.79471		- 22.49209		- 22.36239		- 22.10123		- 21.7403		- 19.50988		- 19.13765		- 18.88967		- 18.7178	
	HQC	- 23.76188		- 23.58181		- 23.29956		- 23.1129		- 23.09551		- 22.94322		- 22.68791		- 20.56003		- 20.28742		- 20.13628		- 20.0586	
	LB	175.399	0.99	183.377	0.98	201.39	0.87 *	199.663	0.89 *	193.008	0.87 *	209.242	0.62 *	233.607	0.20 *	174.619	0.98	163.467	0.99	186.78	0.84 *	191.549	0.77 *
	LM(1)	8.432	0.49 *	4.848	0.85 *	9.596	0.38 *	17.053	0.05	7.313	0.60 *	6.648	0.67 *	15.46	0.08 *	22.755	0.01	5.807	0.76 *	6.547	0.68 *	6.002	0.74 *
	LM(4)	5.742	0.77 *	5.965	0.74 *	3.535	0.94 *	3.357	0.95	8.833	0.45 *	4.634	0.86 *	5.931	0.75 *	12.825	0.17 *	19.171	0.02	7.34	0.60 *	10.892	0.28 *
CB335	Rank(s)	2		2		2		1		2		2		1		2		2		1		1	
	SBC	- 23.60536		- 23.30508		- 22.90684		- 22.62479		- 22.4378		- 22.15678		- 21.95633		- 21.64868		- 21.35547		- 21.03553		- 20.8884	
	HQC	- 23.8665		- 23.69012		- 23.41169		- 23.24559		- 23.17092		- 22.99878		- 22.90395		- 22.69883		- 22.50524		- 22.28214		- 22.2292	
	LB	211.584	0.73 *	205.488	0.82 *	218.808	0.60 *	218.098	0.62 *	214.689	0.51 *	217.345	0.46 *	226.285	0.30 *	220.189	0.41 *	214.104	0.35 *	227.508	0.16 *	238.898	0.06 *
	LM(1)	4.158	0.90 *	3.031	0.96	11.398	0.25 *	10.541	0.31 *	5.508	0.79 *	12.377	0.19 *	12.044	0.21 *	11.756	0.23 *	17.11	0.05	14.375	0.11 *	5.444	0.79 *
	LM(4)	6.665	0.67 *	7.3	0.61 *	8.606	0.47 *	11.641	0.23 *	7.721	0.56 *	16.699	0.05	12.817	0.17 *	8.727	0.46 *	6.407	0.70 *	11.885	0.22 *	20.511	0.02
CB401	Rank(s)	0		2		2		2		2		1		2		2		2		4		4	
	SBC	- 34.70687		- 34.3569		- 33.93818		- 33.37262		- 32.89112		- 32.51734		- 32.01776		- 31.63989		- 28.68875		- 28.28733		- 27.99823	
	HQC	- 35.2		- 35.07851		- 34.87758		- 34.51997		- 34.23739		- 34.05416		- 33.73739		- 33.53513		- 30.7529		- 30.51414		- 30.38187	
	LB	380.344	0.32 *	378.063	0.35 *	377.7	0.35 *	382.514	0.29 *	385.749	0.25 *	362.961	0.56 *	396.841	0.14 *	438.547	0.01	398.823	0.13 *	424.131	0.02	430.975	0.01
	LM(1)	23.874	0.09 *	21.082	0.18 *	11.812	0.76 *	18.961	0.27 *	15.057	0.52 *	6.316	0.98	21.063	0.18 *	23.613	0.10 *	19.377	0.25 *	12.254	0.73 *	16.18	0.44 *
	LM(4)	14.554	0.56 *	7.912	0.95	11.368	0.79 *	10.906	0.82 *	16.846	0.40 *	7.757	0.96	13.514	0.63 *	11.682	0.77 *	34.954	0.00	13.528	0.63 *	19.712	0.23 *
CB402	Rank(s)	0		1		2		2		2		1		0		2		2		3		4	
	SBC	- 33.32762		- 32.90125		- 32.43703		- 31.95759		- 31.37867		- 30.98873		- 30.64828		- 30.39101		- 27.84486		- 27.15457		- 26.83701	
	HQC	- 33.82075		- 33.62286		- 33.37642		- 33.10494		- 32.72494		- 32.52555		- 32.3679		- 32.28624		- 29.90901		- 29.38138		- 29.22065	
	LB	353.889	0.69 *	348.855	0.76 *	367.896	0.49 *	376.38	0.37 *	384.817	0.26 *	388.053	0.23 *	416.663	0.04	439.319	0.01	446.656	0.00	428.426	0.02	440.211	0.01
	LM(1)	17.121	0.38 *	8.215	0.94 *	12.876	0.68 *	14.932	0.53 *	11.522	0.78 *	7.174	0.97	20.567	0.20 *	13.56	0.63 *	21.266	0.17 *	33.561	0.01	10.782	0.82 *
	LM(4)	13.077	0.67 *	8.467	0.93 *	8.551	0.93 *	10.438	0.84 *	15.038	0.52 *	8.272	0.94 *	13.204	0.66 *	7.024	0.97	15.344	0.50 *	5.776	0.99	14.645	0.55 *
CB403	Rank(s)	0		0		1		1		1		0		1		2		3		4		4	
	SBC	- 32.52608		- 32.15548		- 31.69007		- 31.27258		- 30.78091		- 30.45552		- 30.12276		- 29.86311		- 29.53665		- 28.9941		- 28.64553	
	HQC	- 33.01921		- 32.87709		- 32.62947		- 32.41994		- 32.12718		- 31.99234		- 31.84238		- 31.75834		- 31.6008		- 31.22091		- 31.02917	
	LB	427.392	0.02	400.69	0.12 *	423.259	0.02	416.17	0.04	420.859	0.03	424.042	0.02	437.49	0.01	438.492	0.01	448.474	0.00	465.37	0.00	461.94	0.00
	LM(1)	20.258	0.21 *	13.46	0.64 *	15.21	0.51 *	17.029	0.38 *	21.628	0.16 *	15.107	0.52 *	16.683	0.41 *	13.43	0.64 *	21.013	0.18 *	29.546	0.02	8.019	0.95
	LM(4)	18.221	0.31 *	13.685	0.62 *	13.605	0.63 *	18.201	0.31 *	17.509	0.35 *	12.445	0.71 *	15.084	0.52 *	11.563	0.77 *	29.743	0.02	12.24	0.73 *	28.033	0.03
CB404	Rank(s)	0		0		1		1		1		1		2		1		1		1		3	
	SBC	- 32.64694		- 32.32235		- 31.93378		- 31.48821		- 31.02452		- 30.72037		- 30.35918		- 29.83775		- 27.46363		- 26.67321		- 26.40669	
	HQC	- 33.14008		- 33.04396		- 32.87318		- 32.63557		- 32.37079		- 32.25719		- 32.07881		- 31.73298		- 29.52778		- 28.90003		- 28.79033	
	LB	380.912	0.31 *	385.157	0.26 *	410.209	0.06 *	409.75	0.07 *	429.577	0.01	413.122	0.05	430.178	0.01	451.784	0.00	472.326	0.00	384.046	0.27 *	408.75	0.07 *
	LM(1)	25.271	0.07 *	16.607	0.41 *	18.681	0.29 *	18.166	0.31 *	25.634	0.06 *	14.413	0.57 *	11.09	0.80 *	27.174	0.04	21.927	0.15 *	25.946	0.05	17.794	0.34 *
	LM(4)	13.157	0.66 *	9.138	0.91 *	10.553	0.84 *	10.915	0.81 *	12.578	0.70 *	17.773	0.34 *	16.08	0.45 *	24.688	0.08 *	52.858	0.00	10.241	0.85 *	23.777	0.09 *
CB405	Rank(s)	0		1		1		1		1		2		2		2		2		4		4	
	SBC	- 33.0116		- 32.61228		- 32.22035		- 31.83108		- 31.40679		- 31.08016		- 30.76786		- 30.35481		- 27.86244		- 27.13117		- 26.7959	
	HQC	- 33.50473		- 33.33389		- 33.15974		- 32.97844		- 32.75306		- 32.61698		- 32.48748		- 32.25004		- 29.92658		- 29.35799		- 29.17954	
	LB	422.112	0.03	403.491	0.10 *	419	0.03	429.476	0.01	431.03	0.01	443.334	0.00	443.421	0.00	465.649	0.00	473.746	0.00	410.058	0.06 *	440.765	0.01
	LM(1)	22.432	0.13 *	21.484	0.16 *	16.169	0.44 *	10.663	0.83 *	15.649	0.48 *	15.411	0.49 *	16.668	0.41 *	14.648	0.55 *	24.165	0.09 *	14.468	0.56 *	12.45	0.71 *
	LM(4)	19.796	0.23 *	14.479	0.56 *	17.778	0.34 *	20.398	0.20 *	18.22	0.31 *	26.531	0.05	15.31	0.50 *	22.517	0.13 *	49.147	0.00	10.119	0.86 *	17.497	0.35 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 4)

Combination	1	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB406	Rank(s)	2		3		2		2		2		2		2		2		2		2		2	
	SBC	- 36.18964		- 35.69005		- 35.25307		- 34.75493		- 34.37688		- 34.06227		- 33.54695		- 33.22086		- 30.26715		- 29.65167		- 29.20997	
	HQC	- 36.68277		- 36.41166		- 36.19247		- 35.90228		- 35.72315		- 35.59908		- 35.26657		- 35.11609		- 32.3313		- 31.87849		- 31.59361	
	LB	387.332	0.23 *	374.619	0.39 *	371.543	0.44 *	375.89	0.38 *	386.574	0.24 *	411.5	0.06 *	422.16	0.03	460.093	0.00	405.626	0.09 *	413.32	0.05	402.957	0.10 *
	LM(1)	11.906	0.75 *	17.14	0.38 *	10.977	0.81 *	19.693	0.23 *	20.52	0.20 *	5.634	0.99	23.425	0.10 *	18.454	0.30 *	16.387	0.43 *	9.39	0.90 *	18.01	0.32 *
	LM(4)	11.812	0.76 *	6.933	0.97	9.776	0.88 *	11.618	0.77 *	21.57	0.16 *	12.004	0.74 *	16.268	0.43 *	7.127	0.97	27.785	0.03	27.002	0.04	31.072	0.01
CB407	Rank(s)	0		2		2		1		2		2		1		2		2		2		2	
	SBC	- 35.23272		- 34.86373		- 34.39775		- 33.93171		- 33.51667		- 33.17736		- 32.74873		- 32.45653		- 32.1315		- 31.73617		- 31.28811	
	HQC	- 35.72585		- 35.58534		- 35.33714		- 35.07907		- 34.86294		- 34.71418		- 34.46835		- 34.35176		- 34.19565		- 33.96298		- 33.67175	
	LB	401.649	0.11 *	386.601	0.24 *	382.569	0.29 *	397.896	0.14 *	373.797	0.41 *	382.31	0.29 *	404.869	0.09 *	412.887	0.05	432.716	0.01	464.014	0.00	468.765	0.00
	LM(1)	13.393	0.64 *	15.101	0.52 *	13.364	0.65 *	25.191	0.07 *	16.888	0.39 *	6.736	0.98	13.383	0.64 *	15.994	0.45 *	16.107	0.45 *	14.563	0.56 *	8.2	0.94 *
	LM(4)	17.903	0.33 *	14.315	0.58 *	16.47	0.42 *	10.713	0.83 *	13.435	0.64 *	12.031	0.74 *	20.413	0.20 *	9.667	0.88 *	12.771	0.69 *	20.869	0.18 *	26.231	0.05
CB408	Rank(s)	0		0		1		1		1		2		1		0		1		2		2	
	SBC	- 35.36414		- 34.96967		- 34.51134		- 34.04911		- 33.68802		- 33.35527		- 32.8237		- 32.30743		- 29.51291		- 28.99688		- 28.64658	
	HQC	- 35.85727		- 35.69128		- 35.45074		- 35.19647		- 35.03429		- 34.89209		- 34.54332		- 34.20267		- 31.57706		- 31.22369		- 31.03022	
	LB	400.222	0.12 *	405.213	0.09 *	421.954	0.03	426.539	0.02	409.211	0.07 *	409.623	0.07 *	411.89	0.06 *	456.946	0.00	438.082	0.01	398.019	0.14 *	417.484	0.04
	LM(1)	18.186	0.31 *	14.907	0.53 *	15.364	0.50 *	28.676	0.03	16.575	0.41 *	11.053	0.81 *	11.293	0.79 *	15.578	0.48 *	18.439	0.30 *	13.787	0.61 *	12.068	0.74 *
	LM(4)	13.633	0.63 *	12.056	0.74 *	14.42	0.57 *	13.095	0.67 *	13.6	0.63 *	14.402	0.57 *	21.333	0.17 *	20.688	0.19 *	41.435	0.00	21.441	0.16 *	15.934	0.46 *
CB409	Rank(s)	0		1		1		1		1		1		2		3		3		2		2	
	SBC	- 35.72476		- 35.33683		- 34.96389		- 34.57539		- 34.38561		- 34.04771		- 33.48876		- 33.01376		- 30.13639		- 29.56831		- 29.08071	
	HQC	- 36.21789		- 36.05845		- 35.90328		- 35.72275		- 35.73188		- 35.58453		- 35.20838		- 34.90899		- 32.20054		- 31.79513		- 31.46436	
	LB	443.671	0.00	407.454	0.08 *	406.842	0.08 *	440.797	0.01	414.331	0.05	420.578	0.03	417.996	0.04	469.089	0.00	449.182	0.00	430.252	0.01	439.963	0.01
	LM(1)	16.187	0.44 *	23.981	0.09 *	17.214	0.37 *	31.414	0.01	16.323	0.43 *	8.547	0.93 *	24.546	0.08 *	19.066	0.27 *	26.715	0.04	11.463	0.78 *	16.806	0.40 *
	LM(4)	23.003	0.11 *	14.824	0.54 *	19.35	0.25 *	14.17	0.59 *	6.696	0.98	12.57	0.70 *	20.683	0.19 *	12.125	0.74 *	42.038	0.00	28.944	0.02	24.872	0.07 *
CB410	Rank(s)	0		0		1		1		1		1		2		3		3		3		3	
	SBC	- 33.89671		- 33.39772		- 32.93145		- 32.49412		- 32.02798		- 31.74518		- 31.36009		- 31.05328		- 30.76704		- 30.28561		- 29.84039	
	HQC	- 34.38984		- 34.11934		- 33.87085		- 33.64148		- 33.37425		- 33.28199		- 33.07971		- 32.94851		- 32.83119		- 32.51243		- 32.22403	
	LB	399.021	0.13 *	388.926	0.22 *	394.555	0.16 *	402.742	0.10 *	392.87	0.18 *	411.17	0.06 *	433.95	0.01	437.224	0.01	446.868	0.00	481.096	0.00	476.388	0.00
	LM(1)	8.951	0.92 *	9.836	0.88 *	14.038	0.60 *	18.817	0.28 *	21.758	0.15 *	7.556	0.96	14.544	0.56 *	18.165	0.31 *	10.746	0.82 *	19.725	0.23 *	12.998	0.67 *
	LM(4)	15.975	0.45 *	8.427	0.94 *	8.49	0.93 *	13.648	0.62 *	12.94	0.68 *	6.841	0.98	12.102	0.74 *	10.111	0.86 *	20.263	0.21 *	8.892	0.92 *	16.995	0.39 *
CB411	Rank(s)	0		0		0		1		1		1		0		0		1		1		1	
	SBC	- 34.01461		- 33.51902		- 33.05738		- 32.63451		- 32.15594		- 31.85577		- 31.3953		- 30.93477		- 28.25526		- 27.58566		- 27.21255	
	HQC	- 34.50774		- 34.24063		- 33.99678		- 33.78187		- 33.50221		- 33.39259		- 33.11492		- 32.83001		- 30.31941		- 29.81248		- 29.59619	
	LB	368.344	0.49 *	378.488	0.34 *	398.47	0.13 *	410.271	0.06 *	428.815	0.02	437.158	0.01	440.991	0.01	460.229	0.00	424.826	0.02	405.657	0.09 *	401.128	0.11 *
	LM(1)	13.463	0.64 *	13.204	0.66 *	14.206	0.58 *	18.155	0.31 *	22.292	0.13 *	13.736	0.62 *	16.889	0.39 *	12.021	0.74 *	22.332	0.13 *	25.024	0.07 *	6.278	0.98
	LM(4)	15.886	0.46 *	10.641	0.83 *	9.318	0.90 *	12.762	0.69 *	18.86	0.28 *	14.119	0.59 *	20.786	0.19 *	11.192	0.80 *	20.778	0.19 *	7.206	0.97	9.075	0.91 *
CB412	Rank(s)	0		1		1		1		1		1		1		1		1		2		2	
	SBC	- 34.36484		- 33.90176		- 33.49785		- 33.12602		- 32.79833		- 32.499		- 32.03185		- 31.59128		- 28.91278		- 28.16612		- 27.73152	
	HQC	- 34.85798		- 34.62337		- 34.43725		- 34.27338		- 34.1446		- 34.03582		- 33.75147		- 33.48652		- 30.97692		- 30.39293		- 30.11516	
	LB	451.502	0.00	427.574	0.02	429.918	0.01	449.207	0.00	437.122	0.01	457.677	0.00	472.753	0.00	482.368	0.00	483.938	0.00	434.977	0.01	452.007	0.00
	LM(1)	11.385	0.79 *	14.007	0.60 *	15.139	0.51 *	24.142	0.09 *	14.292	0.58 *	12.665	0.70 *	22.037	0.14 *	15.651	0.48 *	21.087	0.18 *	24.922	0.07 *	12.756	0.69 *
	LM(4)	20.03	0.22 *	9.084	0.91 *	12.929	0.68 *	22.848	0.12 *	19.387	0.25 *	11.901	0.75 *	18.306	0.31 *	14.646	0.55 *	12.445	0.71 *	8.826	0.92 *	25.259	0.07 *
CB413	Rank(s)	0		0		0		0		0		0		1		1		1		1		2	
	SBC	- 33.10738		- 32.76895		- 32.28964		- 31.87756		- 31.39601		- 31.15426		- 30.84633		- 30.45014		- 30.17792		- 29.63509		- 29.31015	
	HQC	- 33.60051		- 33.49056		- 33.22904		- 33.02492		- 32.74228		- 32.69108		- 32.56595		- 32.34538		- 32.24207		- 31.86191		- 31.69379	
	LB	407.361	0.08 *	406.67	0.08 *	430.095	0.01	432.866	0.01	418.434	0.04	428.259	0.02	422.514	0.03	455.555	0.00	490.509	0.00	436.744	0.01	438.818	0.01
	LM(1)	26.159	0.05	9.294	0.90 *	20.628	0.19 *	20.163	0.21 *	26.56	0.05	11.651	0.77 *	11.355	0.79 *	17.087	0.38 *	20.438	0.20 *	22.407	0.13 *	11.393	0.78 *
	LM(4)	13.182	0.66 *	10.757	0.82 *	11.204	0.80 *	18.217	0.31 *	22.411	0.13 *	18.76	0.28 *	16.2	0.44 *	17.196	0.37 *	18.142	0.32 *	7.651	0.96	19.001	0.27 *
CB414	Rank(s)	0		1		1		0		1		1		1		2		3		3		3	
	SBC	- 33.5519		- 33.21785		- 32.76379		- 32.45158		- 32.04974		- 31.71986		- 31.45663		- 31.11291		- 30.74366		- 30.26522		- 29.78317	
	HQC	- 34.04503		- 33.93946		- 33.70318		- 33.59894		- 33.39601		- 33.25668		- 33.17625		- 33.00814		- 32.80781		- 32.49204		- 32.16681	
	LB	459.922	0.00	436.463	0.01	444.04	0.00	438.843	0.01	433.697	0.01	433.599	0.01	453.379	0.00	446.512	0.00	459.287	0.00	444.214	0.00	450.212	0.00
	LM(1)	8.652	0.93 *	11.846	0.75 *	20.005	0.22 *	15.197	0.51 *	19.136	0.26 *	17.156	0.38 *	16.302	0.43 *	12.058	0.74 *	32.392	0.01	18.958	0.27 *	6.852	0.98
	LM(4)	24.1	0.09 *	16.21	0.44 *	20.701	0.19 *	17.028	0.38 *	31.108	0.01	18.277	0.31 *	13.708	0.62 *	16.481	0.42 *	27.797	0.03	28.328	0.03	23.778	0.09 *
CB415	Rank(s)	0		0		0		0		1		2		2		3		2		1		2	
	SBC	- 33.56414		- 33.22272		- 32.78542		- 32.46819		- 32.17786		- 31.89619		- 31.55634		- 31.10607		- 28.60946		- 27.81282		- 27.37232	
	HQC	- 34.05727		- 33.94433		- 33.72481		- 33.61555		- 33.52413		- 33.43301		- 33.27596		- 33.0013		- 30.6736		- 30.03963		- 29.75596	
	LB	455.451	0.00	431.846	0.01	447.986	0.00	480.134	0.00	462.203	0.00	452.002	0.00	431.904	0.01	476.976	0.00	510.14	0.00	411.617	0.06 *	404.201	0.09 *
	LM(1)	24.156	0.09 *	16.958	0.39 *	17.372	0.36 *	29.081	0.02	21.777	0.15 *	24.353	0.08 *	12.363	0.72 *	26.874	0.04	27.227	0.04	24.161	0.09 *	10.978	0.81 *
	LM(4)	17.025	0.38 *	9.23	0.90 *	17.286	0.37 *	12.185	0.73 *	20.993	0.18 *	15.754	0.47 *	11.982	0.75 *	14.595	0.55 *	40.761	0.00	20.246	0.21 *	20.374	0.20 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 5)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB416	Rank(s)	0		1		1		1		1		0		0		1		3		1		1	
	SBC	- 32.57038		- 32.07987		- 31.58401		- 31.08684		- 30.61309		- 30.17204		- 29.7531		- 29.50004		- 26.63649		- 26.16893		- 25.86224	
	HQC	- 33.06351		- 32.80148		- 32.5234		- 32.2342		- 31.95936		- 31.70886		- 31.47273		- 31.39528		- 28.70064		- 28.39575		- 28.24588	
	LB	335.562	0.89 *	352.987	0.70 *	361.688	0.58 *	367.832	0.49 *	371.15	0.44 *	364.496	0.54 *	391.905	0.19 *	414.568	0.05	356.84	0.65 *	390.112	0.21 *	404.795	0.09 *
	LM(1)	8.475	0.93 *	12.027	0.74 *	12.254	0.73 *	23.154	0.11 *	7.329	0.97	7.204	0.97	19.259	0.26 *	15.25	0.51 *	18.523	0.29 *	9.329	0.90 *	11.019	0.81 *
	LM(4)	15.069	0.52 *	9.124	0.91 *	9.609	0.89 *	9.925	0.87 *	19.189	0.26 *	9.807	0.88 *	13.956	0.60 *	5.056	1.00	16.994	0.39 *	13.027	0.67 *	23.495	0.10 *
CB417	Rank(s)	0		0		1		1		1		0		0		1		1		2		2	
	SBC	- 31.9174		- 31.48374		- 31.01671		- 30.56805		- 30.11067		- 29.7095		- 29.28289		- 29.03011		- 28.61546		- 28.28139		- 27.97945	
	HQC	- 32.41053		- 32.20535		- 31.95611		- 31.71541		- 31.45694		- 31.24632		- 31.00252		- 30.92535		- 30.67961		- 30.5082		- 30.36309	
	LB	373.868	0.41 *	363.67	0.55 *	373.262	0.41 *	388.315	0.22 *	388.785	0.22 *	396.093	0.15 *	416.394	0.04	423.299	0.02	414.611	0.05	437.824	0.01	458.886	0.00
	LM(1)	16.587	0.41 *	13.422	0.64 *	15.48	0.49 *	17.611	0.35 *	14.676	0.55 *	7.535	0.96	17.229	0.37 *	11.27	0.79 *	13.569	0.63 *	11.491	0.78 *	9.761	0.88 *
	LM(4)	16.189	0.44 *	11.552	0.77 *	12.497	0.71 *	13.304	0.65 *	16.588	0.41 *	13.516	0.63 *	10.654	0.83 *	13.333	0.65 *	24.115	0.09 *	15.808	0.47 *	19.866	0.23 *
CB418	Rank(s)	0		0		0		1		1		1		1		1		2		2		4	
	SBC	- 32.03758		- 31.61828		- 31.20033		- 30.74915		- 30.36778		- 29.97438		- 29.53507		- 29.00046		- 26.35437		- 25.88988		- 25.62699	
	HQC	- 32.53071		- 32.33989		- 32.13972		- 31.89651		- 31.71405		- 31.5112		- 31.25469		- 30.8957		- 28.41851		- 28.11669		- 28.01063	
	LB	352.414	0.71 *	363.981	0.55 *	384.163	0.27 *	394.721	0.16 *	382.846	0.29 *	391.444	0.19 *	413.593	0.05	436.596	0.01	370.446	0.45 *	382.78	0.29 *	398.207	0.13 *
	LM(1)	18.388	0.30 *	18.111	0.32 *	17.34	0.36 *	30.247	0.02	7.755	0.96	6.993	0.97	12.068	0.74 *	26	0.05	20.655	0.19 *	9.025	0.91 *	11.4	0.78 *
	LM(4)	15.726	0.47 *	15.062	0.52 *	15.258	0.51 *	10.648	0.83 *	11.59	0.77 *	13.206	0.66 *	14.954	0.53 *	25.321	0.06 *	40.474	0.00	15.63	0.48 *	10.369	0.85 *
CB419	Rank(s)	0		1		1		1		1		1		1		2		3		3		3	
	SBC	- 32.40173		- 31.96993		- 31.5369		- 31.13042		- 30.79715		- 30.42861		- 29.99211		- 29.59949		- 26.97946		- 26.49404		- 26.21424	
	HQC	- 32.89486		- 32.69154		- 32.4763		- 32.27778		- 32.14341		- 31.96543		- 31.71173		- 31.49472		- 29.04361		- 28.72086		- 28.59788	
	LB	386.793	0.24 *	382.97	0.28 *	383.745	0.28 *	415.191	0.05	400.373	0.12 *	396.2	0.15 *	403.575	0.10 *	457.054	0.00	386.546	0.24 *	382.449	0.29 *	389.288	0.21 *
	LM(1)	14.162	0.59 *	20.297	0.21 *	12.731	0.69 *	22.128	0.14 *	11.645	0.77 *	7.867	0.95	13.057	0.67 *	18.547	0.29 *	21.557	0.16 *	8.648	0.93 *	12.206	0.73 *
	LM(4)	20.357	0.20 *	12.458	0.71 *	10.59	0.83 *	12.025	0.74 *	7.44	0.96	12.728	0.69 *	15.041	0.52 *	9.526	0.89 *	21.638	0.16 *	12.01	0.74 *	14.674	0.55 *
CB420	Rank(s)	0		0		1		1		1		0		1		1		2		1		2	
	SBC	- 30.50721		- 30.01883		- 29.5724		- 29.17945		- 28.67163		- 28.2801		- 27.9351		- 27.62359		- 27.23111		- 26.68051		- 26.39274	
	HQC	- 31.00034		- 30.74044		- 30.51179		- 30.3268		- 30.0179		- 29.81692		- 29.65472		- 29.51882		- 29.29526		- 28.90732		- 28.77638	
	LB	376.631	0.37 *	367.183	0.50 *	388.202	0.22 *	392.582	0.18 *	408.228	0.07 *	425.47	0.02	454.884	0.00	435.236	0.01	431.757	0.01	451.395	0.00	459.144	0.00
	LM(1)	11.251	0.79 *	12.174	0.73 *	15.543	0.49 *	11.205	0.80 *	11.742	0.76 *	8.487	0.93 *	15.339	0.50 *	17.622	0.35 *	24.699	0.08 *	11.925	0.75 *	9.012	0.91 *
	LM(4)	16.859	0.39 *	12.667	0.70 *	10.748	0.82 *	10.719	0.83 *	14.86	0.53 *	15.716	0.47 *	14.564	0.56 *	15.237	0.51 *	28.488	0.03	15.243	0.51 *	28.589	0.03
CB421	Rank(s)	0		0		0		0		0		0		0		0		1		1		2	
	SBC	- 30.51615		- 30.0418		- 29.56269		- 29.10297		- 28.57007		- 28.19262		- 27.82595		- 27.4313		- 25.22379		- 24.50487		- 24.22515	
	HQC	- 31.00928		- 30.76341		- 30.50209		- 30.25032		- 29.91634		- 29.72944		- 29.54558		- 29.32653		- 27.28793		- 26.73168		- 26.60879	
	LB	343.673	0.81 *	363.298	0.56 *	378.842	0.34 *	376.445	0.37 *	392.477	0.18 *	408.173	0.07 *	437.24	0.01	464.315	0.00	447.462	0.00	400.527	0.12 *	396.491	0.15 *
	LM(1)	10.005	0.87 *	10.813	0.82 *	12.826	0.69 *	8.956	0.92 *	12.787	0.69 *	7.582	0.96	8.891	0.92 *	18.709	0.28 *	21.579	0.16 *	17.953	0.33 *	8.238	0.94 *
	LM(4)	14.465	0.56 *	13.211	0.66 *	10.705	0.83 *	9.49	0.89 *	20.469	0.20 *	16.561	0.41 *	10.784	0.82 *	10.602	0.83 *	24.606	0.08 *	16.838	0.40 *	30.564	0.02
CB422	Rank(s)	0		0		0		0		0		0		0		0		1		1		2	
	SBC	- 30.84102		- 30.36824		- 29.9408		- 29.5451		- 29.08486		- 28.74094		- 28.37616		- 27.96454		- 25.63976		- 24.8965		- 24.62483	
	HQC	- 31.33416		- 31.08985		- 30.88019		- 30.69246		- 30.43112		- 30.27776		- 30.09578		- 29.85978		- 27.70391		- 27.12331		- 27.00847	
	LB	376.5	0.37 *	375.916	0.38 *	395.496	0.16 *	401.003	0.11 *	393.072	0.18 *	404.039	0.09 *	428.055	0.02	481.079	0.00	430.254	0.01	376.963	0.36 *	395.041	0.16 *
	LM(1)	14.231	0.58 *	15.741	0.47 *	15.969	0.46 *	11.765	0.76 *	10.812	0.82 *	8.169	0.94 *	11.641	0.77 *	8.658	0.93 *	18.683	0.29 *	28.455	0.03	19.652	0.24 *
	LM(4)	19.229	0.26 *	15.647	0.48 *	16.434	0.42 *	15.415	0.49 *	16.662	0.41 *	15.897	0.46 *	14.158	0.59 *	8.953	0.92 *	20.201	0.21 *	11.047	0.81 *	21.103	0.17 *
CB423	Rank(s)	0		0		0		0		0		0		0		0		0		1		1	
	SBC	- 29.91064		- 29.62622		- 29.16398		- 28.8107		- 28.34564		- 28.04247		- 27.66313		- 27.28741		- 26.8751		- 26.17707		- 25.89561	
	HQC	- 30.40377		- 30.34783		- 30.10337		- 29.95805		- 29.69191		- 29.57929		- 29.38275		- 29.18264		- 28.93925		- 28.40388		- 28.27925	
	LB	392.84	0.18 *	381.34	0.30 *	391.371	0.19 *	400.708	0.12 *	406.552	0.08 *	413.123	0.05	428.068	0.02	442.941	0.00	433.569	0.01	399.285	0.13 *	400.04	0.12 *
	LM(1)	26.153	0.05	11.009	0.81 *	21.893	0.15 *	21.707	0.15 *	22.202	0.14 *	11.252	0.79 *	10.711	0.83 *	17.968	0.33 *	19.218	0.26 *	31.461	0.01	13.917	0.60 *
	LM(4)	16.416	0.42 *	13.333	0.65 *	12.279	0.72 *	12.953	0.68 *	8.992	0.91 *	14.847	0.54 *	15.84	0.46 *	24.431	0.08 *	30.292	0.02	12.47	0.71 *	34.528	0.00
CB424	Rank(s)	0		0		0		0		0		0		0		1		4		1		3	
	SBC	- 30.51969		- 30.01384		- 29.5277		- 29.20723		- 28.84156		- 28.47493		- 28.11537		- 27.89424		- 27.44452		- 26.89334		- 26.56305	
	HQC	- 31.01282		- 30.73545		- 30.4671		- 30.35459		- 30.18783		- 30.01175		- 29.835		- 29.78947		- 29.50867		- 29.12015		- 28.94669	
	LB	382.562	0.29 *	370.366	0.46 *	377.489	0.36 *	393.686	0.17 *	389.104	0.22 *	421.137	0.03	443.734	0.00	433.807	0.01	452.811	0.00	455.568	0.00	454.839	0.00
	LM(1)	11.969	0.75 *	8.846	0.92 *	26.611	0.05	16.78	0.40 *	8.592	0.93 *	13.208	0.66 *	22.518	0.13 *	10.818	0.82 *	25.094	0.07 *	12.988	0.67 *	8.633	0.93 *
	LM(4)	25.257	0.07 *	17.924	0.33 *	16.794	0.40 *	14.802	0.54 *	11.326	0.79 *	17.18	0.37 *	21.158	0.17 *	12.648	0.70 *	24.169	0.09 *	22.228	0.14 *	10.467	0.84 *
CB425	Rank(s)	0		0		0		0		0		0		1		4		3		2		3	
	SBC	- 30.37107		- 29.96643		- 29.53048		- 29.27823		- 28.89091		- 28.56952		- 28.2246		- 27.76921		- 25.54485		- 24.73782		- 24.4081	
	HQC	- 30.8642		- 30.68804		- 30.46987		- 30.42558		- 30.23718		- 30.10634		- 29.94422		- 29.66444		- 27.609		- 26.96463		- 26.79174	
	LB	393.669	0.17 *	386.415	0.24 *	396.119	0.15 *	433.129	0.01	435.912	0.01	437.451	0.01	452.335	0.00	488.445	0.00	482.829	0.00	391.04	0.20 *	377.543	0.35 *
	LM(1)	15.622	0.48 *	13.68	0.62 *	25.174	0.07 *	13.013	0.67 *	15.742	0.47 *	11.765	0.76 *	8.563	0.93 *	18.971	0.27 *	18.971	0.27 *	16.665	0.41 *	16.982	0.39 *
	LM(4)	18.116	0.32 *	16.439	0.42 *	19.472	0.24 *	8.208	0.94 *	12.134	0.73 *	13.335	0.65 *	16.127	0.44 *	15.883	0.46 *	38.264	0.00	17.969	0.33 *	29.358	0.02

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 6)

Combination	l	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB426	Rank(s)	0		1		1		1		1		1		1		2		4		3		4	
	SBC	- 33.1538		- 32.63148		- 32.19049		- 31.74711		- 31.31783		- 30.98962		- 30.61846		- 30.36807		- 29.93115		- 29.58014		- 29.04329	
	HQC	- 33.64693		- 33.35309		- 33.12988		- 32.89447		- 32.6641		- 32.52644		- 32.33808		- 32.26331		- 31.9953		- 31.80696		- 31.42693	
	LB	348.44	0.76 *	363.581	0.56 *	355.43	0.67 *	370.875	0.45 *	375.294	0.39 *	380.658	0.31 *	403.589	0.10 *	410.896	0.06 *	413.894	0.05	441.73	0.00	452.441	0.00
	LM(1)	6.548	0.98	12.645	0.70 *	13.325	0.65 *	18.933	0.27 *	15.246	0.51 *	8.968	0.91 *	16.208	0.44 *	12.036	0.74 *	12.349	0.72 *	6.321	0.98	14.867	0.53 *
	LM(4)	14.189	0.58 *	9.812	0.88 *	11.088	0.80 *	7.273	0.97	14.094	0.59 *	7.935	0.95	9.169	0.91 *	11.251	0.79 *	23.857	0.09 *	13.905	0.61 *	22.803	0.12 *
CB427	Rank(s)	0		0		0		1		0		0		0		0		1		1		0	
	SBC	- 33.22213		- 32.67327		- 32.15251		- 31.69081		- 31.28811		- 31.02387		- 30.52783		- 30.02939		- 27.19238		- 26.65382		- 26.2575	
	HQC	- 33.71526		- 33.39488		- 33.0919		- 32.83817		- 32.63438		- 32.56069		- 32.24745		- 31.92462		- 29.25653		- 28.88064		- 28.64114	
	LB	345.011	0.80 *	365.624	0.53 *	388.538	0.22 *	394.928	0.16 *	391.862	0.19 *	397.482	0.14 *	422.831	0.03	456.264	0.00	373.57	0.41 *	381.954	0.30 *	383.999	0.27 *
	LM(1)	6.41	0.98	7.521	0.96	11.624	0.77 *	26.1	0.05	21.877	0.15 *	7.057	0.97	15.973	0.45 *	15.627	0.48 *	10.149	0.86 *	8.986	0.91 *	11.215	0.80 *
	LM(4)	11.4	0.78 *	10.913	0.81 *	10.429	0.84 *	10.122	0.86 *	14.417	0.57 *	9.981	0.87 *	11.612	0.77 *	10.912	0.81 *	23.485	0.10 *	7.36	0.97	7.366	0.97
CB428	Rank(s)	0		0		1		0		0		0		0		0		1		1		1	
	SBC	- 33.58269		- 33.08111		- 32.69516		- 32.27533		- 32.00746		- 31.63529		- 31.13402		- 30.74363		- 27.84253		- 27.35045		- 26.87398	
	HQC	- 34.07582		- 33.80272		- 33.63455		- 33.42269		- 33.35373		- 33.1721		- 32.85364		- 32.63886		- 29.90668		- 29.57726		- 29.25762	
	LB	388.138	0.23 *	383.713	0.28 *	376.091	0.37 *	392.994	0.18 *	374.162	0.40 *	381.29	0.31 *	406.003	0.08 *	471.33	0.00	392.052	0.19 *	381.507	0.30 *	390.594	0.20 *
	LM(1)	6.791	0.98	14.081	0.59 *	12.065	0.74 *	26.419	0.05	12.846	0.68 *	7.646	0.96	21.236	0.17 *	16.678	0.41 *	25.483	0.06 *	9.487	0.89 *	14.742	0.54 *
	LM(4)	14.542	0.56 *	7.445	0.96	11.642	0.77 *	13.989	0.60 *	6.423	0.98	11.115	0.80 *	11.56	0.77 *	10.828	0.82 *	17.37	0.36 *	12.32	0.72 *	25.328	0.06 *
CB429	Rank(s)	0		0		0		0		0		0		0		0		0		2		1	
	SBC	- 32.49062		- 32.01073		- 31.56067		- 31.14149		- 30.71542		- 30.42423		- 30.01498		- 29.63032		- 29.25779		- 28.75688		- 28.38557	
	HQC	- 32.98375		- 32.73234		- 32.50007		- 32.28885		- 32.06169		- 31.96105		- 31.7346		- 31.52555		- 31.32194		- 30.9837		- 30.76921	
	LB	363.426	0.56 *	354.718	0.68 *	377.161	0.36 *	388.811	0.22 *	374.15	0.40 *	384.47	0.27 *	401.37	0.11 *	416.614	0.04	435.916	0.01	439.294	0.01	452.35	0.00
	LM(1)	18.223	0.31 *	10.329	0.85 *	17.217	0.37 *	23.469	0.10 *	16.001	0.45 *	7.804	0.95	8.771	0.92 *	9.078	0.91 *	9.907	0.87 *	15.734	0.47 *	7.351	0.97
	LM(4)	12.387	0.72 *	11.867	0.75 *	15.164	0.51 *	18.115	0.32 *	8.421	0.94 *	12.234	0.73 *	8.469	0.93 *	13.671	0.62 *	15.615	0.48 *	10.766	0.82 *	18.688	0.29 *
CB430	Rank(s)	0		0		0		0		0		0		0		0		4		3		1	
	SBC	- 32.94027		- 32.52264		- 32.13623		- 31.74714		- 31.42272		- 31.03723		- 30.64804		- 30.39347		- 29.97894		- 29.6361		- 29.03065	
	HQC	- 33.4334		- 33.24426		- 33.07563		- 32.8945		- 32.76899		- 32.57405		- 32.36766		- 32.28871		- 32.04309		- 31.86291		- 31.41429	
	LB	385.346	0.26 *	378.362	0.34 *	379.497	0.33 *	400.6	0.12 *	398.171	0.13 *	406.931	0.08 *	411.085	0.06 *	425.837	0.02	434.923	0.01	431.318	0.01	436.756	0.01
	LM(1)	17.232	0.37 *	18.788	0.28 *	14.921	0.53 *	21.923	0.15 *	12.638	0.70 *	10.338	0.85 *	18.019	0.32 *	11.337	0.79 *	22.216	0.14 *	11.526	0.78 *	16.519	0.42 *
	LM(4)	19.884	0.23 *	14.842	0.54 *	18.155	0.31 *	15.432	0.49 *	6.715	0.98	13.412	0.64 *	10.993	0.81 *	12.922	0.68 *	17.589	0.35 *	9.593	0.89 *	17.631	0.35 *
CB431	Rank(s)	0		0		0		0		0		0		1		1		2		2		2	
	SBC	- 32.90104		- 32.4796		- 32.03892		- 31.75435		- 31.54		- 31.2566		- 30.76574		- 30.29985		- 27.58715		- 26.98274		- 26.57091	
	HQC	- 33.39418		- 33.20121		- 32.97831		- 32.90171		- 32.88627		- 32.79342		- 32.48537		- 32.19509		- 29.6513		- 29.20956		- 28.95455	
	LB	401.323	0.11 *	397.987	0.14 *	404.838	0.09 *	422.888	0.03	409.446	0.07 *	408.553	0.07 *	411.927	0.06 *	462.846	0.00	427.769	0.02	395.383	0.16 *	399.419	0.12 *
	LM(1)	16.674	0.41 *	13.873	0.61 *	19.967	0.22 *	31.628	0.01	22.992	0.11 *	15.109	0.52 *	16.476	0.42 *	13.754	0.62 *	16.64	0.41 *	9.916	0.87 *	12.651	0.70 *
	LM(4)	18.601	0.29 *	15.746	0.47 *	20.615	0.19 *	13.414	0.64 *	7.759	0.96	11.587	0.77 *	13.371	0.65 *	16.533	0.42 *	31.071	0.01	14.263	0.58 *	12.907	0.68 *
CB432	Rank(s)	0		0		0		0		0		0		0		1		1		2		2	
	SBC	- 31.03441		- 30.41079		- 29.95197		- 29.56262		- 29.10689		- 28.7938		- 28.46845		- 28.10023		- 27.76745		- 27.3043		- 26.91904	
	HQC	- 31.52754		- 31.13241		- 30.89137		- 30.70998		- 30.45315		- 30.33061		- 30.18808		- 29.99546		- 29.8316		- 29.53112		- 29.30268	
	LB	353.233	0.70 *	353.292	0.70 *	380.335	0.32 *	384.275	0.27 *	391.054	0.20 *	417.158	0.04	415.686	0.04	431.42	0.01	437.822	0.01	450.54	0.00	443.75	0.00
	LM(1)	7.645	0.96	11.734	0.76 *	18.375	0.30 *	16.51	0.42 *	12.911	0.68 *	10.402	0.84 *	7.455	0.96	17.497	0.35 *	27.32	0.04	13.836	0.61 *	12.183	0.73 *
	LM(4)	18.412	0.30 *	13.959	0.60 *	14.816	0.54 *	9.615	0.89 *	8.612	0.93 *	17.132	0.38 *	11.862	0.75 *	17.663	0.34 *	30.366	0.02	11.759	0.76 *	15.172	0.51 *
CB433	Rank(s)	0		0		0		0		0		0		0		0		1		4		3	
	SBC	- 31.41479		- 30.89827		- 30.46033		- 30.1606		- 29.76578		- 29.47161		- 29.09703		- 28.77644		- 28.36853		- 27.9667		- 27.49015	
	HQC	- 31.90792		- 31.61989		- 31.39972		- 31.30795		- 31.11205		- 31.00843		- 30.81666		- 30.67167		- 30.43267		- 30.19351		- 29.87379	
	LB	405.708	0.09 *	412.36	0.06 *	418.092	0.04	413.664	0.05	397.504	0.14 *	415.642	0.04	416.115	0.04	440.494	0.01	453.684	0.00	463.02	0.00	458.354	0.00
	LM(1)	9.386	0.90 *	5.773	0.99	24.565	0.08 *	10.411	0.84 *	18.391	0.30 *	9.299	0.90 *	14.784	0.54 *	18.046	0.32 *	34.222	0.01	12.13	0.74 *	14.451	0.57 *
	LM(4)	24.696	0.08 *	18.084	0.32 *	19.846	0.23 *	10.547	0.84 *	13.667	0.62 *	16.179	0.44 *	12.604	0.70 *	22.167	0.14 *	30.894	0.01	10.625	0.83 *	28.28	0.03
CB434	Rank(s)	0		0		0		0		0		0		0		0		2		2		1	
	SBC	- 31.3874		- 30.89285		- 30.43333		- 30.11087		- 29.82724		- 29.51569		- 29.09671		- 28.64881		- 26.13812		- 25.44487		- 25.05599	
	HQC	- 31.88053		- 31.61446		- 31.37273		- 31.25823		- 31.17351		- 31.05251		- 30.81633		- 30.54404		- 28.20227		- 27.67168		- 27.43963	
	LB	410.28	0.06 *	412.021	0.06 *	436.213	0.01	449.086	0.00	445.521	0.00	445.774	0.00	465.967	0.00	505.548	0.00	449.365	0.00	396.603	0.15 *	404.338	0.09 *
	LM(1)	12.093	0.74 *	12.603	0.70 *	15.718	0.47 *	26.392	0.05	16.98	0.39 *	11.067	0.81 *	14.438	0.57 *	22.297	0.13 *	27.88	0.03	35.669	0.00	15.571	0.48 *
	LM(4)	19.502	0.24 *	12.974	0.67 *	14.276	0.58 *	16.992	0.39 *	13.606	0.63 *	17.081	0.38 *	16.613	0.41 *	12.865	0.68 *	18.729	0.28 *	10.876	0.82 *	20.377	0.20 *
CB435	Rank(s)	0		0		0		0		0		1		1		2		3		2		2	
	SBC	- 30.8448		- 30.47132		- 30.02045		- 29.78118		- 29.45272		- 29.15493		- 28.84847		- 28.50318		- 28.16268		- 27.50392		- 27.07677	
	HQC	- 31.33794		- 31.19293		- 30.95985		- 30.92853		- 30.79899		- 30.69175		- 30.56809		- 30.39841		- 30.22682		- 29.73073		- 29.46041	
	LB	436.89	0.01	417.362	0.04	431.826	0.01	452.239	0.00	434.57	0.01	443.222	0.00	452.392	0.00	455.526	0.00	445.751	0.00	416.042	0.04	408.921	0.07 *
	LM(1)	22.174	0.14 *	9.998	0.87 *	29.223	0.02	23.667	0.10 *	10.806	0.82 *	15.36	0.50 *	12.445	0.71 *	29.041	0.02	24.018	0.09 *	23.251	0.11 *	14.109	0.59 *
	LM(4)	17.965	0.33 *	14.278	0.58 *	18.62	0.29 *	16.359	0.43 *	16.944	0.39 *	19.54	0.24 *	20.518	0.20 *	18.861	0.28 *	25.269	0.07 *	7.237	0.97	13.49	0.64 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 7)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB501	Rank(s)	1		0		1		1		1		2		2		3		3		3		5	
	SBC	- 41.62971		- 40.84384		- 40.16415		- 39.53984		- 39.02311		- 38.38758		- 37.886		- 37.42191		- 34.87156		- 33.89659		- 33.23181	
	HQC	- 42.45272		- 42.03743		- 41.70519		- 41.40769		- 41.19927		- 40.85537		- 40.63032		- 40.42903		- 38.12896		- 37.39278		- 36.95625	
	LB	531.493	0.16 *	552.652	0.20 *	596.119	0.02	615.378	0.00	635.635	0.00	639.094	0.01	647.304	0.00	685.865	0.00	776.306	0.00	767.214	0.00	767.346	0.00
	LM(1)	42.431	0.02	30.28	0.21 *	17.214	0.87 *	22.488	0.61 *	30.253	0.21 *	24.056	0.52 *	25.968	0.41 *	13.997	0.96	100.727	0.00	18.276	0.83 *	23.318	0.56 *
	LM(4)	22.173	0.63 *	20.962	0.69 *	20.001	0.75 *	25.761	0.42 *	26.749	0.37 *	28.073	0.30 *	25.278	0.45 *	21.539	0.66 *	50.124	0.00	16.337	0.90 *	25.02	0.46 *
CB502	Rank(s)	1		1		1		1		1		1		1		2		3		3		3	
	SBC	- 44.45291		- 43.71556		- 42.99304		- 42.31193		- 41.96599		- 41.32858		- 40.68831		- 40.15447		- 37.34327		- 36.30724		- 35.71972	
	HQC	- 45.27592		- 44.90915		- 44.53408		- 44.17977		- 44.14214		- 43.79637		- 43.43263		- 43.16159		- 40.60066		- 39.80343		- 39.44415	
	LB	549.093	0.06 *	574.727	0.07 *	586.772	0.03	609.308	0.01	592.533	0.02	631.208	0.01	659.39	0.00	669.342	0.00	698.442	0.00	736.739	0.00	725.378	0.00
	LM(1)	41.27	0.02	30.623	0.20 *	16.361	0.90 *	36.676	0.06 *	26.304	0.39 *	16.997	0.88 *	24.142	0.51 *	15.198	0.94 *	87.129	0.00	23.406	0.55 *	14.66	0.95
	LM(4)	28.918	0.27 *	18.83	0.81 *	19.794	0.76 *	20.726	0.71 *	16.349	0.90 *	20.969	0.69 *	22.388	0.61 *	18.432	0.82 *	35.207	0.08 *	30.484	0.21 *	34.778	0.09 *
CB503	Rank(s)	2		0		1		1		1		2		3		3		3		3		3	
	SBC	- 43.13761		- 42.1906		- 41.43686		- 40.76257		- 40.39762		- 39.81179		- 39.26637		- 38.75352		- 36.09148		- 35.05857		- 34.36007	
	HQC	- 43.96062		- 43.38419		- 42.97789		- 42.63041		- 42.57377		- 42.27958		- 42.01069		- 41.76065		- 39.34887		- 38.55476		- 38.08451	
	LB	529.508	0.17 *	551.878	0.20 *	553.264	0.19 *	575.689	0.06 *	595.889	0.02	655.987	0.00	692.806	0.00	727.631	0.00	752.159	0.00	766.465	0.00	748.027	0.00
	LM(1)	23.791	0.53 *	23.224	0.56 *	16.615	0.90 *	34.22	0.10 *	24.871	0.47 *	22.2	0.62 *	24.588	0.49 *	18.896	0.80 *	114.009	0.00	15.963	0.92 *	17.723	0.85 *
	LM(4)	14.415	0.95	12.579	0.98	16.922	0.88 *	24.991	0.46 *	24.495	0.49 *	14.558	0.95	25.514	0.43 *	25.508	0.43 *	36.954	0.06 *	22.068	0.63 *	41.679	0.02
CB504	Rank(s)	1		1		1		1		2		4		4		3		3		3		4	
	SBC	- 42.21639		- 41.48478		- 40.76761		- 40.1213		- 39.63211		- 39.1017		- 38.56305		- 38.17317		- 37.83857		- 37.38954		- 36.50839	
	HQC	- 43.0394		- 42.67838		- 42.30865		- 41.98915		- 41.80827		- 41.56948		- 41.30737		- 41.18029		- 41.09596		- 40.88574		- 40.23282	
	LB	569.059	0.02	589.123	0.03	610.673	0.01	619.712	0.00	625.493	0.00	646.775	0.00	659.759	0.00	690.357	0.00	739.245	0.00	802.205	0.00	787.73	0.00
	LM(1)	39.327	0.03	27.241	0.34 *	18.225	0.83 *	29.741	0.23 *	35.522	0.08 *	23.209	0.57 *	29.503	0.24 *	26.29	0.39 *	32.036	0.16 *	25.006	0.46 *	10.754	0.99
	LM(4)	22.191	0.62 *	19.015	0.80 *	16.534	0.90 *	35.385	0.08 *	35.374	0.08 *	17.252	0.87 *	23.18	0.57 *	17.014	0.88 *	27.865	0.31 *	27.311	0.34 *	36.404	0.07 *
CB505	Rank(s)	0		0		0		1		1		2		3		3		2		2		3	
	SBC	- 42.2347		- 41.54522		- 40.75676		- 40.15229		- 39.72668		- 39.18006		- 38.77852		- 38.13582		- 35.619		- 34.63674		- 33.99298	
	HQC	- 43.05772		- 42.73881		- 42.29779		- 42.02013		- 41.90284		- 41.64785		- 41.52284		- 41.14295		- 38.8764		- 38.13293		- 37.71742	
	LB	542.038	0.09 *	589.42	0.03	631.21	0.00	654.696	0.00	673.446	0.00	678.746	0.00	679.209	0.00	703.632	0.00	780.909	0.00	748.61	0.00	723.584	0.00
	LM(1)	33.138	0.13 *	20.597	0.71 *	17.92	0.85 *	27.78	0.32 *	30.621	0.20 *	36.802	0.06 *	13.763	0.97	14.055	0.96	75.29	0.00	41.367	0.02	12.613	0.98
	LM(4)	16.037	0.91 *	12.323	0.98	14.721	0.95	28.289	0.29 *	36.547	0.06 *	16.761	0.89 *	25.868	0.41 *	23.009	0.58 *	46.237	0.01	26.99	0.36 *	25.555	0.43 *
CB506	Rank(s)	2		1		2		1		1		2		2		3		4		3		4	
	SBC	- 42.7164		- 41.97005		- 41.26677		- 40.73398		- 40.2942		- 39.83167		- 39.44649		- 38.80673		- 36.35571		- 35.23358		- 34.4102	
	HQC	- 43.53941		- 43.16364		- 42.8078		- 42.60182		- 42.47035		- 42.29946		- 42.19081		- 41.81386		- 39.61311		- 38.72977		- 38.13464	
	LB	611.222	0.00	613.987	0.00	637.029	0.00	650.45	0.00	642.48	0.00	672.804	0.00	702.764	0.00	714.891	0.00	788.536	0.00	771.191	0.00	773.156	0.00
	LM(1)	49.472	0.00	25.794	0.42 *	23.722	0.54 *	29.858	0.23 *	22.292	0.62 *	27.499	0.33 *	21.164	0.68 *	24.626	0.48 *	120.323	0.00	26.066	0.40 *	21.047	0.69 *
	LM(4)	29.754	0.23 *	24.256	0.50 *	27.973	0.31 *	36.067	0.07 *	34.138	0.10 *	20.137	0.74 *	15.894	0.92 *	22.943	0.58 *	37.571	0.05	31.341	0.18 *	35.665	0.08 *
CB507	Rank(s)	0		0		0		1		1		1		1		2		2		4		4	
	SBC	- 40.94474		- 40.17179		- 39.45214		- 38.76432		- 38.29958		- 37.52881		- 36.90401		- 36.5207		- 33.65164		- 32.90468		- 32.48913	
	HQC	- 41.76775		- 41.36538		- 40.99317		- 40.63216		- 40.47573		- 39.9966		- 39.64833		- 39.52782		- 36.90903		- 36.40087		- 36.21357	
	LB	468.792	0.84 *	521.639	0.53 *	583.517	0.04	604.329	0.01	591.918	0.02	591.318	0.11 *	603.216	0.06 *	664.454	0.00	644.196	0.00	702.067	0.00	721.454	0.00
	LM(1)	45.733	0.01	31.415	0.18 *	16.812	0.89 *	31.364	0.18 *	20.391	0.73 *	17.771	0.85 *	26.357	0.39 *	21.082	0.69 *	121.155	0.00	11.853	0.99	22.283	0.62 *
	LM(4)	30.007	0.22 *	24.716	0.48 *	17.767	0.85 *	16.909	0.89 *	28.5	0.29 *	22.16	0.63 *	17.704	0.85 *	24.929	0.47 *	42.683	0.02	16.633	0.89 *	29.258	0.25 *
CB508	Rank(s)	0		0		0		0		0		0		0		1		3		2		3	
	SBC	- 39.43201		- 38.48018		- 37.69962		- 37.05054		- 37.05054		- 36.49204		- 35.75463		- 35.23294		- 34.88145		- 32.49081		- 31.68375	
	HQC	- 40.25502		- 39.67377		- 39.24065		- 38.91838		- 38.91838		- 38.66819		- 38.22242		- 37.97726		- 37.88858		- 35.7482		- 35.17994	
	LB	467.927	0.85 *	498.824	0.79 *	538.759	0.33 *	582.131	0.04	582.131	0.04	609.483	0.01	626.511	0.01	659.976	0.00	685.565	0.00	752.787	0.00	742.299	0.00
	LM(1)	38.521	0.04	17.412	0.87 *	15.3	0.93 *	19.607	0.77 *	19.607	0.77 *	15.694	0.92 *	24.7	0.48 *	25.606	0.43 *	18.391	0.83 *	53.98	0.00	24.476	0.49 *
	LM(4)	20.392	0.73 *	21.002	0.69 *	21.351	0.67 *	16.669	0.89 *	16.669	0.89 *	16.206	0.91 *	21.493	0.66 *	22.513	0.61 *	16.037	0.91 *	39.769	0.03	39.047	0.04
CB509	Rank(s)	0		0		0		0		0		0		0		1		2		2		3	
	SBC	- 38.75182		- 37.90066		- 37.17072		- 36.60266		- 36.04992		- 35.40252		- 34.89258		- 34.4874		- 34.15291		- 33.74348		- 32.97311	
	HQC	- 39.57484		- 39.09425		- 38.71175		- 38.4705		- 38.22607		- 37.87031		- 37.6369		- 37.49453		- 37.41031		- 37.23967		- 36.69754	
	LB	541.257	0.10 *	537.313	0.35 *	590.036	0.03	604.876	0.01	615.738	0.00	654.096	0.00	694.016	0.00	680.175	0.00	688.739	0.00	745.347	0.00	732.731	0.00
	LM(1)	57.632	0.00	15.144	0.94 *	20.454	0.72 *	21.113	0.69 *	26.025	0.41 *	22.322	0.62 *	30.152	0.22 *	27.698	0.32 *	34.464	0.10 *	20.004	0.75 *	15.927	0.92 *
	LM(4)	28.62	0.28 *	29.346	0.25 *	22.998	0.58 *	24.79	0.47 *	24.631	0.48 *	25.593	0.43 *	30.423	0.21 *	27.773	0.32 *	34.486	0.10 *	25.605	0.43 *	30.279	0.21 *
CB510	Rank(s)	0		0		0		0		0		1		1		1		1		1		3	
	SBC	- 38.693		- 38.06516		- 37.38956		- 36.85783		- 36.35529		- 35.77801		- 35.21897		- 34.68329		- 32.33987		- 31.3211		- 30.68625	
	HQC	- 39.51601		- 39.25875		- 38.9306		- 38.72568		- 38.53145		- 38.2458		- 37.96329		- 37.69041		- 35.59727		- 34.81729		- 34.41069	
	LB	496.894	0.53 *	518.423	0.57 *	576.334	0.06 *	629.897	0.00	638.706	0.00	655.277	0.00	649.64	0.00	704.923	0.00	741.724	0.00	740.59	0.00	693.439	0.00
	LM(1)	59.683	0.00	20.148	0.74 *	21.466	0.67 *	26.58	0.38 *	32.265	0.15 *	21.057	0.69 *	18.332	0.83 *	20.177	0.74 *	68.512	0.00	28.742	0.27 *	22.577	0.60 *
	LM(4)	19.784	0.76 *	23.67	0.54 *	20.349	0.73 *	18.833	0.81 *	22.345	0.62 *	16.587	0.90 *	30.561	0.20 *	41.252	0.02	57.525	0.00	36.908	0.06 *	36.81	0.06 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 8)

Combination	1	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB511	Rank(s)	1		0		0		0		1		1		1		2		3		3		4	
	SBC	- 39.29751		- 38.41725		- 37.75834		- 37.13623		- 36.66938		- 36.07755		- 35.68094		- 35.27294		- 32.9716		- 31.85826		- 31.20817	
	HQC	- 40.12052		- 39.61084		- 39.29938		- 39.00407		- 38.84553		- 38.54534		- 38.42526		- 38.28006		- 36.22899		- 35.35445		- 34.93261	
	LB	537.284	0.12 *	564.352	0.11 *	616.456	0.00	629.322	0.00	614.01	0.00	644.315	0.00	675.531	0.00	688.481	0.00	740.474	0.00	712.193	0.00	715.575	0.00
	LM(1)	64.528	0.00	31.988	0.16 *	26.268	0.39 *	23.477	0.55 *	21.476	0.67 *	22.096	0.63 *	24.25	0.50 *	23.481	0.55 *	72.613	0.00	25.591	0.43 *	18.441	0.82 *
	LM(4)	32.688	0.14 *	28.21	0.30 *	27.042	0.35 *	22.307	0.62 *	29.404	0.25 *	34	0.11 *	28.853	0.27 *	27.532	0.33 *	49.996	0.00	20.926	0.70 *	30.091	0.22 *
CB512	Rank(s)	0		0		0		0		1		1		1		2		2		2		2	
	SBC	- 42.27705		- 41.3425		- 40.58356		- 39.87342		- 39.56613		- 38.91056		- 38.28935		- 37.8404		- 35.1491		- 34.01265		- 33.36745	
	HQC	- 43.10007		- 42.53609		- 42.12459		- 41.74127		- 41.74229		- 41.37835		- 41.03367		- 40.84753		- 38.4065		- 37.50884		- 37.09189	
	LB	476.885	0.76 *	531.467	0.41 *	540.556	0.31 *	556.613	0.16 *	562.305	0.13 *	617.725	0.02	633.947	0.01	676.225	0.00	664.101	0.00	670.605	0.00	679.08	0.00
	LM(1)	15.287	0.93 *	20.65	0.71 *	16.08	0.91 *	42.385	0.02	20.365	0.73 *	17.368	0.87 *	25.756	0.42 *	19.785	0.76 *	104.928	0.00	27.312	0.34 *	25.258	0.45 *
	LM(4)	15.456	0.93 *	14.016	0.96	18.68	0.81 *	14.485	0.95	16.181	0.91 *	16.761	0.89 *	15.198	0.94 *	14.27	0.96	35.057	0.09 *	34.261	0.10 *	38.584	0.04
CB513	Rank(s)	0		0		0		0		0		0		0		1		1		5		2	
	SBC	- 41.47871		- 40.67034		- 39.92874		- 39.26585		- 38.85981		- 38.15388		- 37.56292		- 37.24256		- 36.78091		- 36.28174		- 35.5748	
	HQC	- 42.30173		- 41.86393		- 41.46978		- 41.13369		- 41.03596		- 40.62167		- 40.30724		- 40.24968		- 40.03831		- 39.77793		- 39.29924	
	LB	506.244	0.41 *	535.71	0.36 *	535.842	0.36 *	566.124	0.10 *	574.755	0.07 *	605.646	0.05	621.316	0.02	662.704	0.00	675.188	0.00	715.404	0.00	741.465	0.00
	LM(1)	59.487	0.00	17.489	0.86 *	19.049	0.79 *	34.151	0.10 *	19.784	0.76 *	18.242	0.83 *	33.745	0.11 *	20.441	0.72 *	19.728	0.76 *	21.027	0.69 *	13.927	0.96 *
	LM(4)	28.838	0.27 *	23.357	0.56 *	19.242	0.79 *	23.354	0.56 *	24.141	0.51 *	16.411	0.90 *	12.182	0.99	17.334	0.87 *	26.815	0.37 *	16.804	0.89 *	30.027	0.22 *
CB514	Rank(s)	0		0		0		0		0		1		1		1		1		2		2	
	SBC	- 41.56695		- 40.7874		- 39.97028		- 39.39347		- 39.04794		- 38.43702		- 37.87515		- 37.22837		- 34.39064		- 33.37873		- 32.82539	
	HQC	- 42.38996		- 41.98099		- 41.51131		- 41.26132		- 41.2241		- 40.90481		- 40.61947		- 40.23549		- 37.64803		- 36.87492		- 36.54983	
	LB	503.793	0.44 *	554.471	0.18 *	598.098	0.01	613.852	0.00	606.676	0.01	599.95	0.07 *	638.599	0.01	660.09	0.00	688.377	0.00	692.41	0.00	703.033	0.00
	LM(1)	46.177	0.01	20.606	0.71 *	18.969	0.80 *	37.675	0.05	30.194	0.22 *	25.206	0.45 *	12.907	0.98	12.519	0.98	61.721	0.00	24.123	0.51 *	18.281	0.83 *
	LM(4)	26.566	0.38 *	23.505	0.55 *	22.355	0.62 *	29.519	0.24 *	23.786	0.53 *	11.49	0.99	24.046	0.52 *	26.514	0.38 *	64.001	0.00	27.01	0.36 *	23.931	0.52 *
CB515	Rank(s)	0		0		0		0		1		1		1		1		2		3		3	
	SBC	- 41.9821		- 41.19526		- 40.56385		- 39.99775		- 39.68403		- 39.18046		- 38.59801		- 38.01563		- 35.25025		- 34.21913		- 33.54206	
	HQC	- 42.80512		- 42.38885		- 42.10489		- 41.86559		- 41.86018		- 41.64825		- 41.34233		- 41.02275		- 38.50765		- 37.71532		- 37.2665	
	LB	549.919	0.06 *	554.34	0.18 *	575.701	0.06 *	605.387	0.01	584.119	0.04	597.077	0.08 *	623.947	0.02	676.445	0.00	730.959	0.00	692.488	0.00	705.466	0.00
	LM(1)	33.257	0.12 *	26.232	0.40 *	23.544	0.55 *	43.462	0.01	22.539	0.60 *	17.911	0.85 *	18.858	0.80 *	15.809	0.92 *	138.054	0.00	19.836	0.76 *	22.396	0.61 *
	LM(4)	34.695	0.09 *	23.592	0.54 *	27.484	0.33 *	24.356	0.50 *	20.296	0.73 *	13.689	0.97	17.694	0.86 *	25.049	0.46 *	46.005	0.01	23.724	0.54 *	31.861	0.16 *
CB516	Rank(s)	0		0		0		0		0		1		1		2		2		5		5	
	SBC	- 39.97065		- 38.97185		- 38.24334		- 37.62577		- 37.16839		- 36.55577		- 36.04073		- 35.63657		- 35.379		- 34.96577		- 34.14515	
	HQC	- 40.79366		- 40.16544		- 39.78437		- 39.49362		- 39.34455		- 39.02355		- 38.78505		- 38.6437		- 38.6364		- 38.46196		- 37.86959	
	LB	516.091	0.30 *	542.907	0.29 *	553.906	0.18 *	572.756	0.07 *	596.848	0.02	634.376	0.01	678.704	0.00	696.726	0.00	736.653	0.00	793.783	0.00	789.353	0.00
	LM(1)	35.874	0.07 *	13.872	0.96	22.836	0.59 *	25.621	0.43 *	22.667	0.60 *	19.572	0.77 *	23.951	0.52 *	36.263	0.07 *	36.175	0.07 *	23.504	0.55 *	36.734	0.06 *
	LM(4)	24.876	0.47 *	22.105	0.63 *	20.945	0.70 *	16.559	0.90 *	15.919	0.92 *	17.81	0.85 *	26.538	0.38 *	35.813	0.07 *	30.181	0.22 *	28.063	0.30 *	31.212	0.18 *
CB517	Rank(s)	1		0		0		0		0		0		0		1		2		2		2	
	SBC	- 40.07244		- 39.13516		- 38.26658		- 37.61964		- 37.18614		- 36.59418		- 36.13298		- 35.49266		- 32.97312		- 32.118		- 31.36551	
	HQC	- 40.89546		- 40.32875		- 39.80761		- 39.48749		- 39.3623		- 39.06197		- 38.8773		- 38.49978		- 36.23052		- 35.61419		- 35.08995	
	LB	489.716	0.62 *	530.582	0.42 *	560.778	0.14 *	612.858	0.00	628.068	0.00	666.969	0.00	678.415	0.00	710.445	0.00	731.333	0.00	739.179	0.00	690.423	0.00
	LM(1)	29.838	0.23 *	14.479	0.95	13.277	0.97	24.789	0.47 *	20.255	0.73 *	22.116	0.63 *	14.033	0.96	17.626	0.86 *	63.447	0.00	27.51	0.33 *	21.179	0.68 *
	LM(4)	22.829	0.59 *	18.054	0.84 *	17.624	0.86 *	19.135	0.79 *	19.489	0.77 *	19.567	0.77 *	23.033	0.58 *	26.55	0.38 *	42.543	0.02	41.96	0.02	20.9	0.70 *
CB518	Rank(s)	1		0		0		0		1		0		0		1		1		2		3	
	SBC	- 40.50378		- 39.54759		- 38.83842		- 38.27604		- 37.88446		- 37.35067		- 36.87451		- 36.30284		- 33.89272		- 32.83132		- 32.0273	
	HQC	- 41.32679		- 40.74118		- 40.37945		- 40.14389		- 40.06061		- 39.81846		- 39.61883		- 39.30996		- 37.15012		- 36.32751		- 35.75174	
	LB	560.332	0.03	587.726	0.03	604.117	0.01	626.058	0.00	621.725	0.00	649.131	0.00	672.095	0.00	733.214	0.00	811.543	0.00	745.512	0.00	717.841	0.00
	LM(1)	34.526	0.10 *	22.179	0.63 *	24.276	0.50 *	34.924	0.09 *	21.399	0.67 *	17.969	0.84 *	22.578	0.60 *	18.644	0.81 *	97.832	0.00	22.32	0.62 *	25.976	0.41 *
	LM(4)	27.796	0.32 *	24.332	0.50 *	31.078	0.19 *	22.593	0.60 *	24.484	0.49 *	22.199	0.62 *	30.56	0.20 *	26.803	0.37 *	22.973	0.58 *	34.709	0.09 *	36.543	0.06 *
CB519	Rank(s)	0		0		0		0		0		0		0		1		1		2		4	
	SBC	- 39.1981		- 38.56152		- 37.76503		- 37.18704		- 36.7332		- 36.16801		- 35.68021		- 35.17668		- 34.89753		- 34.27115		- 33.55024	
	HQC	- 40.02112		- 39.75511		- 39.30606		- 39.05488		- 38.90935		- 38.6358		- 38.42452		- 38.18381		- 38.15493		- 37.76734		- 37.27467	
	LB	524.708	0.21 *	541.227	0.30 *	603.496	0.01	613.588	0.00	605.107	0.01	637.823	0.01	649.873	0.00	677.775	0.00	723.239	0.00	748.289	0.00	717.552	0.00
	LM(1)	63.74	0.00	14.233	0.96	22.648	0.60 *	26.154	0.40 *	36.537	0.06 *	22.115	0.63 *	19.44	0.78 *	33.739	0.11 *	32.329	0.15 *	37.535	0.05	20.606	0.71 *
	LM(4)	18.862	0.80 *	17.478	0.86 *	16.889	0.89 *	29.099	0.26 *	24.474	0.49 *	18.583	0.82 *	35.366	0.08 *	32.226	0.15 *	26.488	0.38 *	24.468	0.49 *	26.003	0.41 *
CB520	Rank(s)	0		0		0		0		0		0		1		2		2		5		5	
	SBC	- 39.83399		- 39.00759		- 38.35418		- 37.83169		- 37.32642		- 36.77505		- 36.31253		- 35.91503		- 35.58738		- 35.13894		- 34.19946	
	HQC	- 40.657		- 40.20118		- 39.89521		- 39.69954		- 39.50258		- 39.24284		- 39.05685		- 38.92216		- 38.84478		- 38.63513		- 37.92389	
	LB	597	0.00	602.182	0.01	615.418	0.00	612.958	0.00	603.599	0.01	648.562	0.00	683.519	0.00	681.313	0.00	702.983	0.00	739.255	0.00	721.104	0.00
	LM(1)	66.502	0.00	23.376	0.56 *	23.175	0.57 *	25.532	0.43 *	22.987	0.58 *	23.173	0.57 *	31.279	0.18 *	28.513	0.28 *	49.593	0.00	34.039	0.11 *	25.703	0.42 *
	LM(4)	33.161	0.13 *	30.163	0.22 *	30.814	0.20 *	27.633	0.33 *	30.638	0.20 *	24.248	0.51 *	22.974	0.58 *	26.015	0.41 *	21.453	0.67 *	20.403	0.73 *	21.796	0.65 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 9)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
CB521	Rank(s)	0		0		0		0		0		1		2		3		3		2		3	
	SBC	- 39.76982		- 39.01881		- 38.2634		- 37.78806		- 37.44708		- 36.96986		- 36.6425		- 35.99976		- 33.64796		- 32.58236		- 31.71755	
	HQC	- 40.59283		- 40.2124		- 39.80443		- 39.65591		- 39.62324		- 39.43765		- 39.38682		- 39.00689		- 36.90536		- 36.07855		- 35.44199	
	LB	553.696	0.05	564.126	0.12 *	611.118	0.01	643.483	0.00	643.436	0.00	646.309	0.00	673.588	0.00	685.099	0.00	734.687	0.00	743.458	0.00	686.117	0.00
	LM(1)	40.675	0.02	19.37	0.78 *	29.933	0.23 *	32.908	0.13 *	27.078	0.35 *	33.111	0.13 *	18.295	0.83 *	30.743	0.20 *	59.455	0.00	32.695	0.14 *	23.28	0.56 *
	LM(4)	28.345	0.29 *	23.704	0.54 *	24.466	0.49 *	24.659	0.48 *	23.616	0.54 *	21.361	0.67 *	28.888	0.27 *	29.514	0.24 *	55.658	0.00	29.414	0.25 *	31.169	0.18 *
CB601	Rank(s)	1		1		2		1		2		3		3		4		5		4		5	
	SBC	- 51.02587		- 50.22354		- 49.06855		- 47.8998		- 47.34431		- 46.82214		- 46.0497		- 45.58978		- 44.78919		- 41.80509		- 40.65987	
	HQC	- 52.30033		- 52.05204		- 51.40663		- 50.70912		- 50.59156		- 50.47808		- 50.08851		- 49.9885		- 49.52727		- 46.86407		- 46.02306	
	LB	699.618	0.08 *	718.488	0.03	777.345	0.01	831.779	0.00	873.673	0.00	902.693	0.00	960.276	0.00	999.203	0.00	1136.273	0.00	1163.604	0.00	1190.989	0.00
	LM(1)	55.95	0.02	27.567	0.84 *	31.277	0.69 *	40.952	0.26 *	40.408	0.28 *	30.062	0.75 *	40.546	0.28 *	29.451	0.77 *	39.247	0.33 *	21.407	0.97	21.909	0.97
	LM(4)	35.008	0.52 *	25.659	0.90 *	25.64	0.90 *	46.918	0.11 *	53.639	0.03	42.953	0.20 *	33.952	0.57 *	35.733	0.48 *	49.056	0.07 *	41.162	0.25 *	43.363	0.19 *
CB602	Rank(s)	0		1		1		0		1		1		1		2		3		4		5	
	SBC	- 47.74345		- 46.99662		- 45.36821		- 44.1864		- 43.52475		- 42.95127		- 42.11341		- 41.76821		- 41.06395		- 38.24759		- 37.29056	
	HQC	- 49.01791		- 48.82512		- 47.70629		- 46.99573		- 46.77199		- 46.60721		- 46.15222		- 46.16692		- 45.80203		- 43.30657		- 42.65375	
	LB	675.97	0.22 *	702.56	0.07 *	752.773	0.03	824.344	0.00	884.401	0.00	879.042	0.00	919.588	0.00	976.949	0.00	1092.807	0.00	1082.052	0.00	1103.901	0.00
	LM(1)	58.98	0.01	30.88	0.71 *	44.554	0.16 *	35.505	0.49 *	35.26	0.50 *	30.912	0.71 *	42.07	0.22 *	39.169	0.33 *	54.872	0.02	22.764	0.96	28.31	0.82 *
	LM(4)	39.537	0.31 *	38.625	0.35 *	31.699	0.67 *	29.27	0.78 *	43.877	0.17 *	52.258	0.04	38.839	0.34 *	38.705	0.35 *	53.315	0.03	36.207	0.46 *	41.406	0.25 *
CB603	Rank(s)	1		0		0		0		1		1		1		2		2		4		2	
	SBC	- 50.58179		- 49.62949		- 48.19109		- 47.00933		- 46.64273		- 46.01146		- 44.96782		- 44.58746		- 43.76785		- 40.53894		- 39.57844	
	HQC	- 51.85625		- 51.458		- 50.52916		- 49.81866		- 49.88998		- 49.6674		- 49.00663		- 48.98617		- 48.50593		- 45.59793		- 44.94163	
	LB	680.54	0.18 *	698.746	0.08 *	740.268	0.07 *	779.266	0.01	826.85	0.00	833.574	0.00	906.275	0.00	957.942	0.00	1080.891	0.00	1027.75	0.00	1083.414	0.00
	LM(1)	49.416	0.07 *	30.298	0.74 *	36.29	0.46 *	57.386	0.01	38.804	0.34 *	21.752	0.97	40.415	0.28 *	26.422	0.88 *	33.928	0.57 *	25.464	0.90 *	25.732	0.90 *
	LM(4)	41.761	0.23 *	29.408	0.77 *	30.491	0.73 *	29.207	0.78 *	46.657	0.11 *	31.151	0.70 *	32.179	0.65 *	29.298	0.78 *	41.783	0.23 *	33.201	0.60 *	48.816	0.08 *
CB604	Rank(s)	1		0		0		0		1		1		2		2		3		3		4	
	SBC	- 48.98059		- 47.79781		- 46.37392		- 45.22265		- 44.7652		- 44.153		- 43.31772		- 42.8508		- 42.18443		- 39.25679		- 38.19884	
	HQC	- 50.25505		- 49.62631		- 48.712		- 48.03198		- 48.01245		- 47.80894		- 47.35653		- 47.24951		- 46.92251		- 44.31577		- 43.56203	
	LB	670.488	0.26 *	695.914	0.09 *	719.938	0.17 *	773.089	0.01	844.818	0.00	890.626	0.00	957.423	0.00	1049.894	0.00	1157.598	0.00	1096.047	0.00	1140.824	0.00
	LM(1)	33.949	0.57 *	28.648	0.80 *	29.49	0.77 *	45.204	0.14 *	29.556	0.77 *	20.727	0.98	34.631	0.53 *	30.136	0.74 *	50.945	0.05	45.612	0.13 *	37.689	0.39 *
	LM(4)	33.369	0.59 *	25.487	0.90 *	31.881	0.66 *	30.586	0.72 *	33.911	0.57 *	30.176	0.74 *	40.334	0.28 *	41.63	0.24 *	38.841	0.34 *	51.768	0.04	49.823	0.06 *
CB605	Rank(s)	0		1		1		0		1		2		2		3		3		3		4	
	SBC	- 48.14093		- 47.5093		- 45.95491		- 44.84286		- 44.2495		- 43.6957		- 42.8983		- 42.63927		- 42.13665		- 41.77116		- 40.36214	
	HQC	- 49.41538		- 49.33781		- 48.29299		- 47.65219		- 47.49674		- 47.35164		- 46.93711		- 47.03798		- 46.87473		- 46.83014		- 45.72533	
	LB	698.668	0.08 *	701.62	0.07 *	776.406	0.01	784.382	0.00	858.064	0.00	885.283	0.00	961.265	0.00	974.831	0.00	1062.505	0.00	1097.9	0.00	1149.686	0.00
	LM(1)	62.543	0.00	21.39	0.97	34.241	0.55 *	38.93	0.34 *	42.679	0.21 *	36.801	0.43 *	44.829	0.15 *	33.128	0.61 *	47.834	0.09 *	17.715	1.00	31.533	0.68 *
	LM(4)	37.819	0.39 *	30.426	0.73 *	35.302	0.50 *	43.439	0.18 *	61.612	0.00	42.122	0.22 *	31.245	0.69 *	39.189	0.33 *	41.416	0.25 *	44.054	0.17 *	39.896	0.30 *
CB606	Rank(s)	1		0		0		0		0		1		2		3		3		2		4	
	SBC	- 48.24621		- 47.32623		- 45.84403		- 44.77549		- 44.30624		- 43.80851		- 43.1022		- 42.59212		- 41.96721		- 38.91034		- 37.78877	
	HQC	- 49.52067		- 49.15474		- 48.18211		- 47.58482		- 47.55349		- 47.46444		- 47.141		- 46.99084		- 46.7053		- 43.96932		- 43.15196	
	LB	707.795	0.05	712.989	0.04	766.425	0.02	840.447	0.00	905.265	0.00	889.795	0.00	932.307	0.00	979.878	0.00	1115.841	0.00	1077.596	0.00	1095.026	0.00
	LM(1)	50.041	0.06 *	24.327	0.93 *	39.172	0.33 *	38.717	0.35 *	43.233	0.19 *	35.56	0.49 *	29.188	0.78 *	34.391	0.55 *	41.41	0.25 *	35.471	0.49 *	35.141	0.51 *
	LM(4)	32.872	0.62 *	27.458	0.85 *	29.562	0.77 *	31.963	0.66 *	42.453	0.21 *	40.284	0.29 *	34.249	0.55 *	46.467	0.11 *	43.013	0.20 *	45.255	0.14 *	40.376	0.28 *
CB607	Rank(s)	0		2		1		0		1		1		2		3		3		4		5	
	SBC	- 48.86883		- 48.05708		- 46.57203		- 45.52111		- 45.01038		- 44.38489		- 43.83571		- 43.37442		- 42.65083		- 39.85259		- 38.40955	
	HQC	- 50.14329		- 49.88559		- 48.91011		- 48.33043		- 48.25763		- 48.04082		- 47.87451		- 47.77313		- 47.38891		- 44.91157		- 43.77274	
	LB	755.616	0.00	738.244	0.01	772.544	0.01	826.151	0.00	836.075	0.00	851.873	0.00	937.518	0.00	1013.675	0.00	1106.513	0.00	1110.991	0.00	1117.837	0.00
	LM(1)	48.184	0.08 *	25.159	0.91 *	47.923	0.09 *	48.935	0.07 *	36.294	0.45 *	32.23	0.65 *	32.942	0.61 *	35.243	0.50 *	65.41	0.00	23.461	0.95	37.399	0.40 *
	LM(4)	49.661	0.06 *	32.047	0.66 *	38.742	0.35 *	40.231	0.29 *	56.158	0.02	41.834	0.23 *	26.603	0.87 *	37.054	0.42 *	44.369	0.16 *	38.698	0.35 *	39.077	0.33 *
CB701	Rank(s)	1		1		3		1		1		3		3		4		5		5		6	
	SBC	- 57.48001		- 55.78519		- 54.0968		- 52.63768		- 51.50702		- 50.96259		- 50.20217		- 49.53702		- 48.8834		- 45.76702		- 44.33078	
	HQC	- 59.36118		- 58.44867		- 57.46373		- 56.64282		- 56.09559		- 56.08796		- 55.82422		- 55.6209		- 55.39858		- 52.68654		- 51.63068	
	LB	821.092	0.01	897.844	0.00	953.333	0.00	1057.611	0.00	1095.432	0.00	1164.151	0.00	1291.112	0.00	1371.012	0.00	1461.29	0.00	1566.218	0.00	1637.772	0.00
	LM(1)	68.911	0.03	50.259	0.42 *	40.399	0.80 *	64.239	0.07 *	50.862	0.40 *	43.934	0.68 *	47.683	0.53 *	54.992	0.26 *	62.058	0.10 *	42.959	0.72 *	48.056	0.51 *
	LM(4)	53.094	0.32 *	42.202	0.74 *	45.508	0.62 *	56.084	0.23 *	72.204	0.02	54.277	0.28 *	50.4	0.42 *	50.112	0.43 *	68.113	0.04	59.207	0.15 *	52.32	0.35 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 10)

Combination	I	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US301	Rank(s)	0		1		3		3		3		3		3		1		3		3		1	
	SBC	- 28.08414		- 27.75982		- 27.46814		- 27.2339		- 27.0712		- 26.79077		- 26.46585		- 23.24339		- 23.02483		- 22.80816		- 22.54962	
	HQC	- 28.34528		- 28.14486		- 27.97299		- 27.8547		- 27.80432		- 27.63277		- 27.41346		- 24.29355		- 24.1746		- 24.05477		- 23.89041	
	LB	241.616	0.21 *	245.989	0.16 *	233.035	0.34 *	238.589	0.25 *	240.54	0.12 *	256.383	0.03	268.855	0.01	191.999	0.88 *	189.746	0.80 *	182.044	0.89 *	178.422	0.93 *
	LM(1)	7.787	0.56 *	6.938	0.64 *	9.708	0.37 *	10.093	0.34 *	5.829	0.76 *	5.677	0.77 *	8.228	0.51 *	38.392	0.00	13.288	0.15 *	6.985	0.64 *	5.67	0.77 *
	LM(4)	8.059	0.53 *	10.043	0.35 *	8.882	0.45 *	12.146	0.21 *	17.606	0.04	14.499	0.11 *	11.823	0.22 *	22.152	0.01	16.633	0.05	10.349	0.32 *	7.873	0.55 *
US302	Rank(s)	0		1		1		0		3		3		3		3		2		3		2	
	SBC	- 26.95086		- 26.65242		- 26.33272		- 26.00358		- 25.81627		- 25.58606		- 25.36654		- 25.17057		- 25.16465		- 25.04047		- 24.89611	
	HQC	- 27.212		- 27.03746		- 26.83757		- 26.62439		- 26.54939		- 26.42805		- 26.31415		- 26.22073		- 26.31442		- 26.28707		- 26.23691	
	LB	238.654	0.25 *	226.135	0.47 *	230.802	0.38 *	229.475	0.40 *	236.449	0.16 *	239.31	0.13 *	251.107	0.05	265.014	0.01	260.791	0.01	264.992	0.00	274.06	0.00
	LM(1)	14.136	0.12 *	7.468	0.59 *	3.531	0.94 *	16.466	0.06 *	6.723	0.67 *	8.168	0.52 *	8.021	0.53 *	26.593	0.00	11.79	0.23 *	12.031	0.21 *	8.094	0.52 *
	LM(4)	4.786	0.85 *	3.31	0.95	4.812	0.85 *	9.04	0.43 *	12.453	0.19 *	5.044	0.83 *	10.07	0.34 *	13.461	0.14 *	5.928	0.75 *	4.789	0.85 *	1.986	0.99
US303	Rank(s)	0		2		1		1		2		1		1		1		1		1		1	
	SBC	- 28.01026		- 27.74167		- 27.55826		- 27.25387		- 27.01214		- 26.75647		- 26.44534		- 23.30776		- 23.06803		- 22.82613		- 22.63958	
	HQC	- 28.2714		- 28.12671		- 28.06311		- 27.87468		- 27.74526		- 27.59847		- 27.39296		- 24.35791		- 24.2178		- 24.07274		- 23.98038	
	LB	249.426	0.13 *	250.955	0.11 *	236.408	0.29 *	230.741	0.38 *	240.658	0.12 *	262.359	0.02	263.398	0.02	203.813	0.71 *	187.276	0.83 *	181.305	0.90 *	177.74	0.93 *
	LM(1)	20.197	0.02	17.06	0.05	7.403	0.60 *	4.985	0.84 *	7.71	0.56 *	6.593	0.68 *	11.456	0.25 *	32.281	0.00	11.334	0.25 *	12.464	0.19 *	5.944	0.75 *
	LM(4)	8.799	0.46 *	4.399	0.88 *	7.998	0.53 *	11.521	0.24 *	19.173	0.02	14.445	0.11 *	10.421	0.32 *	12.801	0.17 *	18.538	0.03	8.966	0.44 *	5.572	0.78 *
US304	Rank(s)	3		3		3		3		3		3		2		3		3		3		3	
	SBC	- 27.71618		- 27.43708		- 27.17303		- 26.91629		- 26.70505		- 26.46818		- 26.17951		- 22.92642		- 22.57639		- 22.30391		- 22.10947	
	HQC	- 27.97732		- 27.82212		- 27.67788		- 27.5371		- 27.43817		- 27.31018		- 27.12712		- 23.97657		- 23.72615		- 23.55051		- 23.45027	
	LB	270.977	0.02	288.89	0.00	263.385	0.04	256.391	0.07 *	267.216	0.01	270.607	0.01	294.629	0.00	226.219	0.30 *	223.259	0.21 *	221.458	0.23 *	227.868	0.15 *
	LM(1)	6.408	0.70 *	14.387	0.11 *	6.624	0.68 *	8.285	0.51 *	12.654	0.18 *	10.275	0.33 *	13.233	0.15 *	37.702	0.00	5.706	0.77 *	5.996	0.74 *	5.197	0.82 *
	LM(4)	7.296	0.61 *	6.316	0.71 *	5.609	0.78 *	8.142	0.52 *	5.591	0.78 *	7.498	0.59 *	5.298	0.81 *	11.958	0.22 *	18.371	0.03	11.148	0.27 *	10.378	0.32 *
US305	Rank(s)	0		0		0		0		1		3		3		3		2		3		3	
	SBC	- 25.55447		- 25.23427		- 24.94381		- 24.72547		- 24.53059		- 24.31621		- 24.10104		- 23.88763		- 23.84948		- 23.47667		- 23.26415	
	HQC	- 25.81561		- 25.61931		- 25.44866		- 25.34627		- 25.26371		- 25.1582		- 25.04866		- 24.93778		- 24.99925		- 24.72327		- 24.60494	
	LB	236.661	0.28 *	230.254	0.39 *	238.579	0.25 *	236.859	0.28 *	235.315	0.17 *	238.864	0.14 *	246.236	0.08 *	254.217	0.04	261.49	0.01	251.244	0.02	245.761	0.03
	LM(1)	14.486	0.11 *	3.462	0.94 *	10.766	0.29 *	8.121	0.52 *	7.826	0.55 *	6.884	0.65 *	2.776	0.97	23.675	0.00	11.012	0.27 *	2.316	0.99	3.253	0.95
	LM(4)	6.403	0.70 *	5.986	0.74 *	7.289	0.61 *	11.386	0.25 *	11.849	0.22 *	8.896	0.45 *	9.948	0.35 *	9.338	0.41 *	8.663	0.47 *	8.95	0.44 *	3.783	0.93 *
US306	Rank(s)	0		1		0		0		1		1		0		1		1		1		1	
	SBC	- 26.7109		- 26.42581		- 26.07861		- 25.83336		- 25.61216		- 25.36403		- 25.0659		- 22.39272		- 22.05984		- 21.49667		- 21.30416	
	HQC	- 26.97204		- 26.81085		- 26.58346		- 26.45416		- 26.34528		- 26.20602		- 26.01352		- 23.44287		- 23.20961		- 22.74327		- 22.64495	
	LB	225.992	0.47 *	220.255	0.58 *	224.71	0.49 *	241.7	0.21 *	237.588	0.15 *	253.583	0.04	261.132	0.02	245.745	0.08 *	222.566	0.22 *	157.238	1.00	162.288	0.99
	LM(1)	9.196	0.42 *	4.445	0.88 *	10.859	0.29 *	6.848	0.65 *	7.336	0.60 *	8.068	0.53 *	10.658	0.30 *	38.073	0.00	7.255	0.61 *	4.22	0.90 *	5.711	0.77 *
	LM(4)	7.164	0.62 *	6.995	0.64 *	7.911	0.54 *	12.856	0.17 *	18.637	0.03	13.753	0.13 *	18.856	0.03	42.273	0.00	9.96	0.35 *	3.499	0.94 *	4.333	0.89 *
US307	Rank(s)	0		0		0		0		0		0		1		3		3		3		3	
	SBC	- 26.23437		- 26.00389		- 25.69181		- 25.49666		- 25.27049		- 25.0914		- 24.82883		- 22.086		- 21.62282		- 21.14488		- 20.91171	
	HQC	- 26.49551		- 26.38893		- 26.19666		- 26.11747		- 26.00361		- 25.9334		- 25.77645		- 23.13615		- 22.77259		- 22.39148		- 22.25251	
	LB	287.612	0.00	297.001	0.00	271.963	0.02	288.879	0.00	292.287	0.00	298.443	0.00	295.987	0.00	320.608	0.00	308.451	0.00	247.683	0.03	241.806	0.05
	LM(1)	7.49	0.59 *	10.638	0.30 *	5.688	0.77 *	4.89	0.84 *	6.361	0.70 *	9.098	0.43 *	4.825	0.85 *	19.105	0.02	7.836	0.55 *	7.596	0.58 *	10.194	0.34 *
	LM(4)	9.717	0.37 *	9.234	0.42 *	5.47	0.79 *	9.086	0.43 *	4.547	0.87 *	5.136	0.82 *	10.115	0.34 *	31.277	0.00	17.641	0.04	10.786	0.29 *	7.587	0.58 *
US308	Rank(s)	0		1		1		0		0		0		0		0		0		0		1	
	SBC	- 25.54781		- 25.44298		- 25.10628		- 24.78067		- 24.52748		- 24.33367		- 24.15163		- 24.0092		- 24.03846		- 23.59168		- 23.34737	
	HQC	- 25.80895		- 25.82802		- 25.61113		- 25.40147		- 25.2606		- 25.17566		- 25.09925		- 25.05935		- 25.18822		- 24.83828		- 24.68816	
	LB	243.796	0.19 *	219.48	0.59 *	224.044	0.51 *	231.54	0.37 *	232.15	0.21 *	236.984	0.16 *	231.837	0.22 *	250.985	0.05	235.705	0.08 *	188.695	0.81 *	192.658	0.75 *
	LM(1)	29.291	0.00	3.948	0.91 *	6.312	0.71 *	6.947	0.64 *	9.214	0.42 *	7.48	0.59 *	9.26	0.41 *	21.865	0.01	13.08	0.16 *	5.034	0.83 *	14.232	0.11 *
	LM(4)	5.583	0.78 *	3.119	0.96	3.999	0.91 *	7.193	0.62 *	5.974	0.74 *	8.387	0.50 *	4.047	0.91 *	3.364	0.95	4.003	0.91 *	6.009	0.74 *	7.285	0.61 *
US309	Rank(s)	1		1		3		1		3		1		3		3		0		3		1	
	SBC	- 25.14825		- 24.9531		- 24.6019		- 24.40307		- 24.21354		- 23.95673		- 23.80459		- 23.64667		- 23.49276		- 23.10166		- 22.90664	
	HQC	- 25.40938		- 25.33815		- 25.10675		- 25.02388		- 24.94666		- 24.79872		- 24.7522		- 24.69683		- 24.64253		- 24.34827		- 24.24744	
	LB	284.822	0.00	292.063	0.00	301.72	0.00	307.695	0.00	304.219	0.00	304.499	0.00	300.143	0.00	315.003	0.00	303.518	0.00	276.663	0.00	288.816	0.00
	LM(1)	10.311	0.33 *	4.496	0.88 *	8.93	0.44 *	10.935	0.28 *	7.527	0.58 *	13.709	0.13 *	9.958	0.35 *	15.746	0.07 *	11.032	0.27 *	6.126	0.73 *	4.736	0.86 *
	LM(4)	8.1	0.52 *	5.148	0.82 *	5.598	0.78 *	19.759	0.02	16.43	0.06 *	10.719	0.30 *	11.895	0.22 *	6.021	0.74 *	12.965	0.16 *	5.832	0.76 *	12.685	0.18 *
US310	Rank(s)	1		1		1		2		2		1		1		1		1		1		2	
	SBC	- 26.26005		- 26.10295		- 25.80218		- 25.58618		- 25.33067		- 25.0622		- 24.839		- 22.09867		- 21.75359		- 21.11617		- 20.89435	
	HQC	- 26.52119		- 26.48799		- 26.30703		- 26.20698		- 26.06378		- 25.9042		- 25.78661		- 23.14882		- 22.90336		- 22.36277		- 22.23515	
	LB	276.339	0.01	277.57	0.01	270.332	0.02	276.243	0.01	294.034	0.00	301.202	0.00	293.906	0.00	305.437	0.00	284.557	0.00	186.347	0.85 *	199.778	0.63 *
	LM(1)	17.255	0.04	14.663	0.10 *	11.046	0.27 *	5.534	0.79 *	9.751	0.37 *	13.855	0.13 *	14.433	0.11 *	36.119	0.00	7.894	0.54 *	8.699	0.47 *	10.499	0.31 *
	LM(4)	6.523	0.69 *	4.871	0.85 *	7.181	0.62 *	20.198	0.02	12.795	0.17 *	18.838	0.03	8.762	0.46 *	26.637	0.00	19.149	0.02	11.082	0.27 *	15.595	0.08 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 11)

Combination	1	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US311	Rank(s)	0		0		1		0		0		3		3		3		1		1		1	
	SBC	- 28.0986		- 27.8108		- 27.55648		- 27.25183		- 27.08005		- 26.89228		- 26.69682		- 26.60956		- 26.44088		- 26.27225		- 25.9709	
	HQC	- 28.35974		- 28.19584		- 28.06133		- 27.87263		- 27.81316		- 27.73427		- 27.64444		- 27.65972		- 27.59065		- 27.51886		- 27.3117	
	LB	236.769	0.28 *	239.186	0.25 *	237.661	0.27 *	235.994	0.29 *	246.267	0.08 *	247.953	0.07 *	250.119	0.06 *	232.11	0.22 *	239.271	0.06 *	223.353	0.21 *	231.516	0.12 *
	LM(1)	12.8	0.17 *	9.731	0.37 *	7.37	0.60 *	16.417	0.06 *	11.64	0.23 *	6.582	0.68 *	15.056	0.09 *	14.107	0.12 *	22.216	0.01	9.343	0.41 *	6.721	0.67 *
	LM(4)	6.999	0.64 *	6.797	0.66 *	7.139	0.62 *	11.276	0.26 *	12.817	0.17 *	12.264	0.20 *	14.859	0.09 *	6.897	0.65 *	7.74	0.56 *	14.547	0.10 *	14.1	0.12 *
US312	Rank(s)	0		1		1		1		3		2		2		1		2		1		1	
	SBC	- 28.84228		- 28.54894		- 28.24794		- 28.01467		- 27.82383		- 27.54181		- 27.23312		- 24.11902		- 23.90334		- 23.70777		- 23.38317	
	HQC	- 29.10342		- 28.93398		- 28.75279		- 28.63547		- 28.55695		- 28.38381		- 28.18074		- 25.16918		- 25.05311		- 24.95437		- 24.72397	
	LB	236.162	0.29 *	247.075	0.15 *	237.344	0.27 *	235.691	0.30 *	243.868	0.09 *	250.927	0.05	251.433	0.05	213.232	0.54 *	229.238	0.14 *	233.873	0.10 *	217.03	0.30 *
	LM(1)	7.359	0.60 *	10.031	0.35 *	11.393	0.25 *	14.788	0.10 *	8.22	0.51 *	6.44	0.70 *	9.469	0.40 *	24.662	0.00	11.797	0.23 *	7.271	0.61 *	11.369	0.25 *
	LM(4)	12.462	0.19 *	14.878	0.09 *	12.88	0.17 *	17.76	0.04	14.363	0.11 *	14.1	0.12 *	7.328	0.60 *	39.335	0.00	20.504	0.02	8.039	0.53 *	4.966	0.84 *
US313	Rank(s)	3		1		1		1		0		1		1		2		2		2		3	
	SBC	- 28.8723		- 28.6016		- 28.35704		- 28.07845		- 27.81447		- 27.62207		- 27.36346		- 24.27151		- 23.90928		- 23.65726		- 23.3233	
	HQC	- 29.13344		- 28.98664		- 28.86189		- 28.69925		- 28.54759		- 28.46407		- 28.31107		- 25.32167		- 25.05905		- 24.90387		- 24.66409	
	LB	276.252	0.01	277.558	0.01	227.971	0.43 *	233.829	0.33 *	247.571	0.07 *	250.994	0.05	270.627	0.01	227.611	0.28 *	231.865	0.11 *	240.85	0.05	220.239	0.25 *
	LM(1)	6.7	0.67 *	19.255	0.02	1.057	1.00	7.915	0.54 *	4.185	0.90 *	5.455	0.79 *	18.927	0.03	28.488	0.00	14.546	0.10 *	16	0.07 *	21.36	0.01
	LM(4)	10.726	0.29 *	10.3	0.33 *	8.716	0.46 *	6.586	0.68 *	6.905	0.65 *	12.667	0.18 *	1.093	1.00	25.046	0.00	13.437	0.14 *	24.7	0.00	17.531	0.04
US314	Rank(s)	0		1		0		0		1		2		0		0		0		1		1	
	SBC	- 27.69909		- 27.49467		- 27.18098		- 26.89238		- 26.69583		- 26.60358		- 26.39559		- 26.13097		- 26.02289		- 25.88165		- 25.63704	
	HQC	- 27.96023		- 27.87971		- 27.68583		- 27.51318		- 27.42894		- 27.44558		- 27.34321		- 27.18113		- 27.17266		- 27.12825		- 26.97784	
	LB	255.074	0.08 *	260.962	0.05	266.783	0.03	247.168	0.15 *	237.381	0.15 *	238.793	0.14 *	245.159	0.08 *	265.279	0.01	261.393	0.01	247.708	0.03	251.165	0.02
	LM(1)	19.523	0.02	9.851	0.36 *	8.718	0.46 *	19.094	0.02	20.346	0.02	6.713	0.67 *	4.528	0.87 *	7.228	0.61 *	14.267	0.11 *	13.139	0.16 *	15.792	0.07 *
	LM(4)	9.841	0.36 *	10.513	0.31 *	10.477	0.31 *	5.564	0.78 *	11.618	0.24 *	14.128	0.12 *	18.054	0.03	15.398	0.08 *	12.237	0.20 *	6.252	0.71 *	2.902	0.97
US315	Rank(s)	3		3		3		3		3		0		2		3		3		3		1	
	SBC	- 27.6945		- 27.51474		- 27.2463		- 27.01051		- 26.83195		- 26.63435		- 26.42156		- 26.2873		- 25.97789		- 25.87577		- 25.61128	
	HQC	- 27.95564		- 27.89978		- 27.75115		- 27.63131		- 27.56507		- 27.47634		- 27.36917		- 27.33745		- 27.12765		- 27.12237		- 26.95208	
	LB	279.192	0.01	288.776	0.00	255.386	0.08 *	253.488	0.09 *	253.207	0.04	244.263	0.09 *	244.38	0.09 *	252.42	0.05	259.083	0.01	251.108	0.02	277.987	0.00
	LM(1)	7.134	0.62 *	8.827	0.45 *	10.886	0.28 *	14.095	0.12 *	10.46	0.31 *	12.563	0.18 *	15.735	0.07 *	8.853	0.45 *	26.092	0.00	9.334	0.41 *	6.84	0.65 *
	LM(4)	13.763	0.13 *	12.846	0.17 *	12.002	0.21 *	10.151	0.34 *	4.733	0.86 *	23.009	0.01	22.384	0.01	17.083	0.05	18.869	0.03	14.404	0.11 *	14.691	0.10 *
US316	Rank(s)	1		1		1		2		3		3		2		3		2		3		2	
	SBC	- 28.42098		- 28.20905		- 27.98958		- 27.77414		- 27.58873		- 27.34733		- 27.05177		- 23.8936		- 23.58265		- 23.30922		- 23.08338	
	HQC	- 28.68212		- 28.5941		- 28.49443		- 28.39495		- 28.32185		- 28.18933		- 27.99939		- 24.94376		- 24.73242		- 24.55582		- 24.42417	
	LB	265.769	0.03	289.634	0.00	250.337	0.12 *	230.686	0.38 *	229.109	0.26 *	231.512	0.22 *	246.068	0.08 *	195.147	0.84 *	225.975	0.17 *	232.183	0.11 *	236.907	0.08 *
	LM(1)	12.996	0.16 *	17.709	0.04	10.746	0.29 *	15.996	0.07 *	15.531	0.08 *	7.15	0.62 *	13.088	0.16 *	39.165	0.00	7.83	0.55 *	8.387	0.50 *	8.16	0.52 *
	LM(4)	13.04	0.16 *	14.321	0.11 *	13.691	0.13 *	12.088	0.21 *	13.344	0.15 *	9.589	0.38 *	9.341	0.41 *	17.189	0.05	15.07	0.09 *	18.154	0.03	16.484	0.06 *
US317	Rank(s)	0		0		0		0		0		1		1		1		1		3		2	
	SBC	- 26.33767		- 26.03866		- 25.72714		- 25.49692		- 25.25826		- 25.09002		- 24.91182		- 24.71575		- 24.65632		- 24.26735		- 23.9842	
	HQC	- 26.59881		- 26.4237		- 26.23199		- 26.11772		- 25.99138		- 25.93202		- 25.85944		- 25.76591		- 25.80609		- 25.51395		- 25.325	
	LB	231.192	0.37 *	228.267	0.43 *	243.333	0.19 *	233.147	0.34 *	226.352	0.30 *	222.782	0.36 *	230.43	0.24 *	241.456	0.11 *	262.352	0.01	237.704	0.07 *	232.132	0.11 *
	LM(1)	11.659	0.23 *	5.088	0.83 *	5.837	0.76 *	6.683	0.67 *	6.793	0.66 *	5.074	0.83 *	6.229	0.72 *	7.818	0.55 *	14.205	0.12 *	7.828	0.55 *	4.555	0.87 *
	LM(4)	7.408	0.59 *	10.967	0.28 *	11.746	0.23 *	7.428	0.59 *	5.007	0.83 *	8.463	0.49 *	7.837	0.55 *	7.962	0.54 *	4.424	0.88 *	7.48	0.59 *	9.544	0.39 *
US318	Rank(s)	1		0		1		0		1		2		2		2		2		2		1	
	SBC	- 26.30346		- 26.07469		- 25.82252		- 25.57881		- 25.38578		- 25.31281		- 25.14306		- 24.96233		- 24.641		- 24.36415		- 24.04079	
	HQC	- 26.5646		- 26.45974		- 26.32737		- 26.19961		- 26.1189		- 26.1548		- 26.09068		- 26.01248		- 25.79077		- 25.61075		- 25.38159	
	LB	288.757	0.00	293.386	0.00	281.117	0.01	291.509	0.00	279.231	0.00	282.059	0.00	280.279	0.00	293.427	0.00	288.835	0.00	287.634	0.00	285.672	0.00
	LM(1)	7.179	0.62 *	10.92	0.28 *	6.287	0.71 *	11.043	0.27 *	13.823	0.13 *	9.322	0.41 *	10.966	0.28 *	2.624	0.98	14.797	0.10 *	4.862	0.85 *	11.167	0.26 *
	LM(4)	8.823	0.45 *	7.338	0.60 *	4.505	0.88 *	16.625	0.05	13.691	0.13 *	6.468	0.69 *	4.575	0.87 *	11.9	0.22 *	17.123	0.05	15.417	0.08 *	13.43	0.14 *
US319	Rank(s)	0		0		0		0		0		0		0		3		3		3		2	
	SBC	- 26.99671		- 26.78585		- 26.47776		- 26.21065		- 26.00054		- 25.81055		- 25.56901		- 22.87826		- 22.48184		- 22.03941		- 21.75026	
	HQC	- 27.25785		- 27.17089		- 26.98261		- 26.83145		- 26.73365		- 26.65254		- 26.51663		- 23.92841		- 23.63161		- 23.28602		- 23.09105	
	LB	260.524	0.05	280.641	0.01	255.389	0.08 *	264.072	0.04	263.292	0.02	266.706	0.01	272.573	0.01	261.03	0.02	269.742	0.00	233.228	0.10 *	207.738	0.47 *
	LM(1)	9.191	0.42 *	11.152	0.27 *	8.211	0.51 *	12.55	0.18 *	11.505	0.24 *	10.415	0.32 *	10.326	0.32 *	22.625	0.01	12.352	0.19 *	11.444	0.25 *	7.204	0.62 *
	LM(4)	7.379	0.60 *	10.006	0.35 *	5.365	0.80 *	9.878	0.36 *	8.707	0.46 *	7.993	0.53 *	7.325	0.60 *	30.663	0.00	7.573	0.58 *	15.602	0.08 *	21.278	0.01
US320	Rank(s)	1		1		1		1		3		1		1		0		0		1		2	
	SBC	- 25.90566		- 25.7994		- 25.48493		- 25.24756		- 25.05731		- 24.93965		- 24.81706		- 24.58649		- 24.41132		- 24.04248		- 23.83996	
	HQC	- 26.1668		- 26.18444		- 25.98978		- 25.86836		- 25.79042		- 25.78165		- 25.76468		- 25.63664		- 25.56108		- 25.28909		- 25.18076	
	LB	289.007	0.00	286.473	0.00	288.154	0.00	283.384	0.01	276.204	0.00	275.06	0.00	267.203	0.01	295.417	0.00	303.681	0.00	259.143	0.01	259.528	0.01
	LM(1)	19.068	0.02	7.402	0.60 *	8.093	0.52 *	10.865	0.29 *	18.552	0.03	12.184	0.20 *	10.367	0.32 *	10.121	0.34 *	22.422	0.01	11.087	0.27 *	7.059	0.63 *
	LM(4)	8.107	0.52 *	11.499	0.24 *	8.332	0.50 *	10.631	0.30 *	14.607	0.10 *	10.298	0.33 *	8.237	0.51 *	6.014	0.74 *	12.189	0.20 *	10.183	0.34 *	3.731	0.93 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 12)

Combination	1	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US321	Rank(s)	1		1		1		1		1		2		2		2		1		1		2	
	SBC	- 23.12124		- 22.88361		- 22.62841		- 22.40099		- 22.19683		- 22.08026		- 21.90423		- 21.64485		- 21.47712		- 21.13962		- 20.8957	
	HQC	- 23.38238		- 23.26865		- 23.13326		- 23.0218		- 22.92995		- 22.92225		- 22.85185		- 22.69501		- 22.62688		- 22.38622		- 22.23649	
	LB	241.375	0.22 *	243.209	0.19 *	253.946	0.09 *	251.048	0.11 *	255.689	0.03	247.27	0.07 *	252.702	0.04	272.659	0.01	280.136	0.00	251.368	0.02	241.849	0.05
	LM(1)	8.864	0.45 *	5.898	0.75 *	6.163	0.72 *	5.614	0.78 *	11.509	0.24 *	5.498	0.79 *	5.806	0.76 *	4.254	0.89 *	12.538	0.18 *	8.235	0.51 *	7.164	0.62 *
	LM(4)	6.272	0.71 *	9.332	0.41 *	4.899	0.84 *	4.952	0.84 *	5.917	0.75 *	9.598	0.38 *	8.584	0.48 *	8.221	0.51 *	6.726	0.67 *	5.259	0.81 *	10.58	0.31 *
US322	Rank(s)	2		3		3		3		2		1		1		1		1		3		3	
	SBC	- 24.6255		- 24.44009		- 24.20239		- 23.99409		- 23.80383		- 23.64602		- 23.44531		- 23.17898		- 23.01563		- 22.78083		- 22.53777	
	HQC	- 24.88664		- 24.82513		- 24.70724		- 24.61489		- 24.53695		- 24.48802		- 24.39292		- 24.22914		- 24.1654		- 24.02743		- 23.87856	
	LB	228.084	0.43 *	232.12	0.36 *	240.342	0.23 *	234.062	0.33 *	240.802	0.12 *	225.19	0.32 *	225.766	0.31 *	233.793	0.19 *	235.188	0.09 *	247.527	0.03	259.678	0.01
	LM(1)	14.896	0.09 *	3.824	0.92 *	12.591	0.18 *	12.202	0.20 *	14.059	0.12 *	9.454	0.40 *	3.871	0.92 *	9.64	0.38 *	3.579	0.94 *	7.17	0.62 *	6.111	0.73 *
	LM(4)	15.047	0.09 *	17.393	0.04	13.039	0.16 *	7.572	0.58 *	8.82	0.45 *	5.075	0.83 *	5.35	0.80 *	8.158	0.52 *	8.089	0.53 *	6.982	0.64 *	8.657	0.47 *
US323	Rank(s)	3		1		1		1		1		1		1		2		2		2		2	
	SBC	- 25.61846		- 25.35162		- 25.06446		- 24.79333		- 24.58659		- 24.42068		- 24.13951		- 20.98718		- 20.67803		- 20.43758		- 20.13387	
	HQC	- 25.8796		- 25.73666		- 25.56931		- 25.41413		- 25.31971		- 25.26267		- 25.08712		- 22.03733		- 21.8278		- 21.68418		- 21.47466	
	LB	223.219	0.52 *	230.226	0.39 *	220.58	0.57 *	230.328	0.39 *	225.298	0.32 *	221.764	0.38 *	239.744	0.13 *	160.964	1.00	177.814	0.93 *	192.27	0.76 *	174.351	0.95
	LM(1)	5	0.83 *	9.982	0.35 *	6.763	0.66 *	9.395	0.40 *	7.058	0.63 *	2.327	0.99	11.814	0.22 *	30.549	0.00	10.269	0.33 *	9.569	0.39 *	9.708	0.37 *
	LM(4)	9.584	0.39 *	11.487	0.24 *	6.987	0.64 *	10.961	0.28 *	10.278	0.33 *	4.508	0.87 *	5.886	0.75 *	27.727	0.00	25.027	0.00	8.71	0.46 *	6.731	0.67 *
US324	Rank(s)	1		1		1		1		1		1		1		1		2		2		1	
	SBC	- 24.86829		- 24.66055		- 24.44613		- 24.17214		- 24.02448		- 23.84411		- 23.66912		- 23.46516		- 23.16543		- 22.99357		- 22.63392	
	HQC	- 25.12942		- 25.04559		- 24.95098		- 24.79294		- 24.7576		- 24.6861		- 24.61674		- 24.51531		- 24.3152		- 24.24017		- 23.97472	
	LB	220.741	0.57 *	225.803	0.47 *	204.237	0.84 *	215.923	0.66 *	223.955	0.34 *	204.605	0.70 *	210.489	0.59 *	215.525	0.50 *	212.275	0.39 *	229.451	0.14 *	231.493	0.12 *
	LM(1)	9.752	0.37 *	13.501	0.14 *	2.474	0.98	13.043	0.16 *	8.921	0.44 *	8.356	0.50 *	5.79	0.76 *	6.154	0.72 *	19.903	0.02	7.86	0.55 *	7.863	0.55 *
	LM(4)	4.028	0.91 *	6.778	0.66 *	5.024	0.83 *	3.452	0.94 *	6.606	0.68 *	5.392	0.80 *	9.04	0.43 *	4.838	0.85 *	11.954	0.22 *	12.567	0.18 *	11.26	0.26 *
US325	Rank(s)	0		2		1		1		3		3		1		3		1		1		1	
	SBC	- 24.89672		- 24.57386		- 24.26543		- 24.00018		- 23.82197		- 23.65052		- 23.48125		- 23.24023		- 23.13973		- 22.93827		- 22.64047	
	HQC	- 25.15786		- 24.9589		- 24.77028		- 24.62099		- 24.55509		- 24.49251		- 24.42886		- 24.29039		- 24.2895		- 24.18487		- 23.98127	
	LB	192.041	0.95	198.798	0.90 *	225.259	0.48 *	229.461	0.41 *	229.433	0.25 *	211.483	0.57 *	206.639	0.66 *	222.612	0.36 *	237.382	0.07 *	252.135	0.02	258.78	0.01
	LM(1)	11.742	0.23 *	4.01	0.91 *	7.628	0.57 *	13.62	0.14 *	11.854	0.22 *	7.753	0.56 *	4.127	0.90 *	15.263	0.08 *	10.194	0.34 *	9.096	0.43 *	5.456	0.79 *
	LM(4)	7.521	0.58 *	11.267	0.26 *	9.832	0.36 *	7.275	0.61 *	8.11	0.52 *	9.01	0.44 *	8.418	0.49 *	8.067	0.53 *	4.072	0.91 *	5.405	0.80 *	7.483	0.59 *
US326	Rank(s)	1		1		1		0		0		0		0		0		0		1		1	
	SBC	- 22.38546		- 22.20903		- 21.92822		- 21.75955		- 21.49218		- 21.25243		- 21.08061		- 20.86204		- 20.81813		- 20.31779		- 20.0732	
	HQC	- 22.6466		- 22.59408		- 22.43307		- 22.38035		- 22.2253		- 22.09443		- 22.02822		- 21.91219		- 21.9679		- 21.56439		- 21.41399	
	LB	280.851	0.01	269.2	0.02	268.26	0.03	271.372	0.02	281.747	0.00	279.986	0.00	288.381	0.00	312.865	0.00	271.292	0.00	215.037	0.34 *	211.075	0.41 *
	LM(1)	11.284	0.26 *	5.785	0.76 *	12.434	0.19 *	1.708	1.00	5.04	0.83 *	7.806	0.55 *	8.439	0.49 *	27.227	0.00	10.3	0.33 *	3.153	0.96	9.833	0.36 *
	LM(4)	10.73	0.29 *	10.245	0.33 *	10.409	0.32 *	3.875	0.92 *	1.957	0.99	5.439	0.79 *	6.133	0.73 *	14.023	0.12 *	11.02	0.27 *	5.008	0.83 *	8.801	0.46 *
US327	Rank(s)	0		0		0		0		0		0		0		2		3		3		3	
	SBC	- 23.3559		- 23.11622		- 22.77284		- 22.5672		- 22.31588		- 22.09261		- 21.85012		- 19.22328		- 18.80244		- 18.25135		- 18.07986	
	HQC	- 23.61704		- 23.50126		- 23.27769		- 23.188		- 23.049		- 22.93461		- 22.79774		- 20.27344		- 19.95221		- 19.49796		- 19.42066	
	LB	246.084	0.16 *	246.335	0.16 *	250.631	0.12 *	260.146	0.05	264.285	0.01	281.641	0.00	288.321	0.00	249.562	0.06 *	224.236	0.20 *	142.857	1.00	129.122	1.00
	LM(1)	4.531	0.87 *	3.842	0.92 *	11.048	0.27 *	2.919	0.97	5.296	0.81 *	9.701	0.38 *	8.587	0.48 *	27.94	0.00	8.937	0.44 *	10.992	0.28 *	5.176	0.82 *
	LM(4)	7.688	0.57 *	8.14	0.52 *	6.238	0.72 *	7.104	0.63 *	7.225	0.61 *	11.116	0.27 *	16.843	0.05	33.146	0.00	15.691	0.07 *	2.778	0.97	5.344	0.80 *
US328	Rank(s)	1		1		1		1		1		1		1		1		1		1		1	
	SBC	- 22.30919		- 22.1097		- 21.87278		- 21.70187		- 21.47442		- 21.26231		- 21.07219		- 20.79733		- 20.60603		- 20.25831		- 20.08351	
	HQC	- 22.57033		- 22.49474		- 22.37763		- 22.32268		- 22.20754		- 22.10431		- 22.01981		- 21.84749		- 21.7558		- 21.50491		- 21.42431	
	LB	248.439	0.14 *	264.831	0.04	277.398	0.01	268.564	0.02	262.163	0.02	260.477	0.02	264.341	0.01	280.443	0.00	275.138	0.00	258.49	0.01	256.091	0.01
	LM(1)	11.313	0.25 *	5.388	0.80 *	8.805	0.46 *	3.672	0.93 *	7.886	0.55 *	5.572	0.78 *	3.875	0.92 *	16.397	0.06 *	5.369	0.80 *	10.422	0.32 *	3.679	0.93 *
	LM(4)	6.914	0.65 *	7.084	0.63 *	7.468	0.59 *	5.928	0.75 *	5.239	0.81 *	12.057	0.21 *	17.541	0.04	20.847	0.01	14.27	0.11 *	7.911	0.54 *	9.191	0.42 *
US329	Rank(s)	0		0		0		0		0		0		0		3		1		3		3	
	SBC	- 22.75539		- 22.43273		- 22.1922		- 21.92876		- 21.70249		- 21.47639		- 21.28188		- 21.03053		- 21.02228		- 20.50298		- 20.35597	
	HQC	- 23.01653		- 22.81777		- 22.69705		- 22.54957		- 22.43561		- 22.31839		- 22.22949		- 22.08068		- 22.17205		- 21.74958		- 21.69677	
	LB	203.864	0.84 *	187.794	0.97	212.744	0.71 *	211.852	0.73 *	219.138	0.43 *	226.941	0.29 *	248.028	0.07 *	254.692	0.04	268.963	0.00	220.469	0.25 *	219.366	0.26 *
	LM(1)	6.947	0.64 *	4.582	0.87 *	4.611	0.87 *	7.647	0.57 *	3.187	0.96	2.998	0.96	6.94	0.64 *	19.012	0.03	5.069	0.83 *	8.518	0.48 *	3.398	0.95
	LM(4)	5.196	0.82 *	5.2	0.82 *	6.268	0.71 *	5.907	0.75 *	8.69	0.47 *	13.651	0.14 *	15.902	0.07 *	13.405	0.15 *	9.455	0.40 *	8.333	0.50 *	6.242	0.72 *
US330	Rank(s)	3		3		2		3		3		1		1		3		3		3		3	
	SBC	- 24.91988		- 24.6467		- 24.39651		- 24.22703		- 23.97097		- 23.69127		- 23.40323		- 20.26735		- 19.85162		- 19.54333		- 19.33695	
	HQC	- 25.18102		- 25.03174		- 24.90136		- 24.84783		- 24.70409		- 24.53327		- 24.35085		- 21.31751		- 21.00139		- 20.78994		- 20.67775	
	LB	234.807	0.31 *	245.739	0.16 *	243.691	0.19 *	235.843	0.30 *	233.738	0.19 *	247.21	0.07 *	269.205	0.01	179.66	0.97	167.189	0.98	161.175	0.99	168.314	0.98
	LM(1)	6.444	0.69 *	16.434	0.06 *	9.047	0.43 *	5.412	0.80 *	7.005	0.64 *	8.724	0.46 *	15.887	0.07 *	32.458	0.00	7.696	0.57 *	8.397	0.49 *	8.502	0.48 *
	LM(4)	13.627	0.14 *	11.953	0.22 *	12.497	0.19 *	2.49	0.98	3.677	0.93 *	4.35	0.89 *	4.82	0.85 *	4.57	0.87 *	20.799	0.01	4.861	0.85 *	5.008	0.83 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 13)

Combination	I	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US331	Rank(s)	3		3		3		3		3		1		1		2		3		2		3	
	SBC	- 23.82398		- 23.5859		- 23.31472		- 23.13874		- 22.92951		- 22.64596		- 22.45872		- 22.22167		- 22.02661		- 21.85327		- 21.67686	
	HQC	- 24.08512		- 23.97094		- 23.81957		- 23.75955		- 23.66263		- 23.48795		- 23.40634		- 23.27182		- 23.17638		- 23.09987		- 23.01765	
	LB	227.313	0.44 *	231.958	0.36 *	239.461	0.24 *	237.53	0.27 *	250.002	0.06 *	242.189	0.11 *	251.586	0.05	262.646	0.02	258.13	0.01	270.744	0.00	289.99	0.00
	LM(1)	7.828	0.55 *	2.534	0.98	10.183	0.34 *	7.998	0.53 *	4.761	0.85 *	11.604	0.24 *	2.633	0.98	12.414	0.19 *	5.86	0.75 *	7.939	0.54 *	4.587	0.87 *
	LM(4)	11.143	0.27 *	11.451	0.25 *	9.919	0.36 *	9.306	0.41 *	12.036	0.21 *	14.564	0.10 *	9.235	0.42 *	13.072	0.16 *	7.623	0.57 *	5.758	0.76 *	5.596	0.78 *
US332	Rank(s)	0		2		2		0		0		0		0		3		3		3		3	
	SBC	- 24.16986		- 23.88496		- 23.64051		- 23.37376		- 23.13945		- 22.93063		- 22.70517		- 22.41386		- 22.38618		- 22.20382		- 22.01633	
	HQC	- 24.431		- 24.27		- 24.14536		- 23.99456		- 23.87257		- 23.77262		- 23.65279		- 23.46402		- 23.53594		- 23.45043		- 23.35713	
	LB	220.516	0.57 *	205.06	0.83 *	221.443	0.55 *	217.08	0.64 *	220.129	0.41 *	214.029	0.53 *	218.628	0.44 *	230.264	0.24 *	240.927	0.05	239.397	0.06 *	239.693	0.06 *
	LM(1)	12.906	0.17 *	4.409	0.88 *	9.359	0.40 *	6.251	0.71 *	6.85	0.65 *	4.333	0.89 *	5.996	0.74 *	27.654	0.00	4.371	0.89 *	12.229	0.20 *	10.378	0.32 *
	LM(4)	12.397	0.19 *	10.121	0.34 *	11.723	0.23 *	8.075	0.53 *	11.639	0.23 *	4.693	0.86 *	4.522	0.87 *	11.262	0.26 *	11.22	0.26 *	5.967	0.74 *	7.969	0.54 *
US333	Rank(s)	3		1		1		1		1		1		1		3		3		3		3	
	SBC	- 24.81441		- 24.5512		- 24.27964		- 24.04769		- 23.81053		- 23.57945		- 23.27779		- 20.09269		- 19.7362		- 19.52688		- 19.27735	
	HQC	- 25.07555		- 24.93624		- 24.78449		- 24.6685		- 24.54365		- 24.42144		- 24.22541		- 21.14284		- 20.88597		- 20.77349		- 20.61814	
	LB	233.315	0.34 *	249	0.13 *	235.087	0.31 *	236.268	0.29 *	230.039	0.24 *	237.828	0.15 *	245.836	0.08 *	159.008	1.00	153.702	1.00	177.546	0.93 *	166.576	0.98
	LM(1)	5.878	0.75 *	13.602	0.14 *	6.472	0.69 *	4.328	0.89 *	3.624	0.93 *	3.247	0.95	7.556	0.58 *	23.177	0.01	4.025	0.91 *	4.101	0.90 *	15.84	0.07 *
	LM(4)	7.649	0.57 *	10.008	0.35 *	4.666	0.86 *	5.447	0.79 *	5.605	0.78 *	2.116	0.99	5.246	0.81 *	24.184	0.00	26.526	0.00	8.212	0.51 *	11.257	0.26 *
US334	Rank(s)	0		1		0		1		3		3		3		1		3		3		3	
	SBC	- 25.16844		- 24.83207		- 24.5269		- 24.27113		- 24.05836		- 23.76658		- 23.46877		- 20.41301		- 20.1531		- 19.92361		- 19.72899	
	HQC	- 25.42958		- 25.21711		- 25.03176		- 24.89193		- 24.79148		- 24.60857		- 24.41639		- 21.46316		- 21.30287		- 21.17022		- 21.06979	
	LB	208.261	0.78 *	200.023	0.88 *	215.405	0.67 *	222.065	0.54 *	227.906	0.28 *	239.255	0.13 *	256.757	0.03	161.914	1.00	155.804	1.00	145.874	1.00	159.451	0.99
	LM(1)	6.263	0.71 *	3.922	0.92 *	8.177	0.52 *	7.437	0.59 *	4.371	0.89 *	6.06	0.73 *	5.187	0.82 *	40.581	0.00	7.208	0.62 *	6.761	0.66 *	3.125	0.96
	LM(4)	8.247	0.51 *	10.138	0.34 *	9.097	0.43 *	9.526	0.39 *	17.514	0.04	21.316	0.01	19.349	0.02	14.337	0.11 *	23.725	0.00	5.381	0.80 *	6.226	0.72 *
US335	Rank(s)	0		2		2		1		3		3		1		3		3		3		3	
	SBC	- 24.14885		- 23.83692		- 23.54389		- 23.26196		- 23.05909		- 22.80988		- 22.61408		- 22.34984		- 22.27392		- 22.14101		- 21.88969	
	HQC	- 24.40998		- 24.22196		- 24.04874		- 23.88276		- 23.79221		- 23.65188		- 23.5617		- 23.4		- 23.42369		- 23.38762		- 23.23049	
	LB	181.002	0.99	193.65	0.94 *	206.07	0.81 *	208.113	0.78 *	208.685	0.63 *	203.443	0.72 *	206.916	0.66 *	214.282	0.52 *	230.221	0.13 *	261.904	0.01	284.704	0.00
	LM(1)	9.033	0.43 *	4.193	0.90 *	2.878	0.97	6.187	0.72 *	4.103	0.90 *	9.113	0.43 *	3.404	0.95	16.253	0.06 *	10.81	0.29 *	3.242	0.95	3.501	0.94 *
	LM(4)	2.889	0.97	4.48	0.88 *	4.615	0.87 *	6.107	0.73 *	7.7	0.56 *	8.446	0.49 *	8.715	0.46 *	8.735	0.46 *	3.946	0.91 *	5.202	0.82 *	5.674	0.77 *
US401	Rank(s)	0		1		2		2		4		4		1		4		4		4		4	
	SBC	- 36.62867		- 36.19598		- 35.80553		- 35.29305		- 34.81004		- 34.45589		- 34.00197		- 33.61783		- 30.31575		- 29.90379		- 29.62894	
	HQC	- 37.1218		- 36.91759		- 36.74493		- 36.44041		- 36.15631		- 35.99271		- 35.72159		- 35.51306		- 32.37989		- 32.1306		- 32.01258	
	LB	400.491	0.12 *	411.494	0.06 *	400.51	0.12 *	405.622	0.09 *	386.172	0.25 *	388.724	0.22 *	431.162	0.01	453.1	0.00	394.722	0.16 *	418.736	0.03	424.064	0.02
	LM(1)	20.236	0.21 *	19.82	0.23 *	8.262	0.94 *	17.306	0.37 *	15.687	0.48 *	13.037	0.67 *	11.8	0.76 *	23.891	0.09 *	18.073	0.32 *	18.579	0.29 *	14.997	0.52 *
	LM(4)	13.328	0.65 *	12.775	0.69 *	11.721	0.76 *	14.542	0.56 *	24.441	0.08 *	15.847	0.46 *	16.523	0.42 *	17.276	0.37 *	24.624	0.08 *	15.273	0.50 *	11.566	0.77 *
US402	Rank(s)	0		0		0		1		4		3		4		2		4		4		4	
	SBC	- 35.16577		- 34.74334		- 34.26081		- 33.83464		- 33.36206		- 33.04815		- 32.63037		- 32.19038		- 29.32002		- 28.68617		- 28.2486	
	HQC	- 35.6589		- 35.46495		- 35.2002		- 34.982		- 34.70833		- 34.58497		- 34.34999		- 34.08561		- 31.38416		- 30.91298		- 30.63224	
	LB	382.586	0.29 *	389.409	0.21 *	397.386	0.14 *	418.563	0.04	413.214	0.05	430.914	0.01	466.451	0.00	478.997	0.00	482.232	0.00	451.652	0.00	427.698	0.02
	LM(1)	16.506	0.42 *	9.037	0.91 *	15.204	0.51 *	19.389	0.25 *	15.142	0.51 *	10.272	0.85 *	9.583	0.89 *	29.703	0.02	23.648	0.10 *	25.159	0.07 *	5.836	0.99
	LM(4)	16.391	0.43 *	16.352	0.43 *	11.801	0.76 *	14.844	0.54 *	19.722	0.23 *	19.627	0.24 *	17.697	0.34 *	19.824	0.23 *	18.741	0.28 *	20.059	0.22 *	10.703	0.83 *
US403	Rank(s)	0		1		1		1		2		1		4		2		2		2		2	
	SBC	- 34.03008		- 33.72135		- 33.29827		- 32.77278		- 32.23846		- 31.83846		- 31.50697		- 31.21947		- 31.2188		- 30.75509		- 30.45394	
	HQC	- 34.52321		- 34.44296		- 34.23766		- 33.92014		- 33.58473		- 33.37528		- 33.22659		- 33.1147		- 33.28294		- 32.9819		- 32.83758	
	LB	416.461	0.04	406.587	0.08 *	415.371	0.04	427.64	0.02	406.581	0.08 *	418.988	0.03	437.901	0.01	426.066	0.02	446.879	0.00	435.725	0.01	457.876	0.00
	LM(1)	30.655	0.01	13.268	0.65 *	11.639	0.77 *	24.053	0.09 *	11.247	0.79 *	15.046	0.52 *	16.142	0.44 *	28.938	0.02	26.16	0.05	16.313	0.43 *	8.977	0.91 *
	LM(4)	13.416	0.64 *	9.982	0.87 *	6	0.99	17.791	0.34 *	25.437	0.06 *	9.821	0.88 *	10.815	0.82 *	9.144	0.91 *	16.876	0.39 *	12.523	0.71 *	11.924	0.75 *
US404	Rank(s)	0		1		1		1		2		1		1		1		1		1		1	
	SBC	- 35.11275		- 34.86039		- 34.44408		- 33.97659		- 33.43577		- 33.04232		- 32.65236		- 32.2848		- 29.4223		- 28.72939		- 28.32625	
	HQC	- 35.60588		- 35.582		- 35.38347		- 35.12395		- 34.78204		- 34.57914		- 34.37198		- 34.18003		- 31.48644		- 30.95621		- 30.70989	
	LB	388.918	0.22 *	396.073	0.15 *	397.196	0.14 *	416.441	0.04	429.648	0.01	420.223	0.03	428.01	0.02	446.555	0.00	432.815	0.01	365.813	0.52 *	378.256	0.34 *
	LM(1)	33.35	0.01	12.643	0.70 *	9.829	0.88 *	14.396	0.57 *	12.086	0.74 *	18.795	0.28 *	17.808	0.34 *	20.138	0.21 *	26.01	0.05	33.524	0.01	18.677	0.29 *
	LM(4)	11.031	0.81 *	6.197	0.99	8.442	0.93 *	19.094	0.26 *	21.308	0.17 *	25.749	0.06 *	16.755	0.40 *	18.093	0.32 *	21.777	0.15 *	15.949	0.46 *	19.324	0.25 *
US405	Rank(s)	0		2		2		2		4		4		4		3		4		4		4	
	SBC	- 34.75882		- 34.38055		- 33.999		- 33.59748		- 33.08891		- 32.85708		- 32.51205		- 32.22785		- 29.07744		- 28.31572		- 27.94774	
	HQC	- 35.25195		- 35.10216		- 34.9384		- 34.74484		- 34.43518		- 34.3939		- 34.23167		- 34.12308		- 31.14159		- 30.54253		- 30.33138	
	LB	431.849	0.01	445.27	0.00	443.745	0.00	470.163	0.00	463.177	0.00	478.846	0.00	497.523	0.00	497.836	0.00	540.768	0.00	462.276	0.00	474.535	0.00
	LM(1)	20.44	0.20 *	20.872	0.18 *	13.473	0.64 *	15.737	0.47 *	21.439	0.16 *	18.353	0.30 *	22.507	0.13 *	16.805	0.40 *	28.109	0.03	22.118	0.14 *	13.097	0.67 *
	LM(4)	16.862	0.39 *	13.097	0.67 *	7.601	0.96	29.677	0.02	26.133	0.05	22.038	0.14 *	17.254	0.37 *	12.786	0.69 *	32.334	0.01	29.003	0.02	15.903	0.46 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 14)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US406	Rank(s)	0		1		2		3		3		3		4		3		2		2		1	
	SBC	- 37.87176		- 37.36714		- 37.01495		- 36.55248		- 36.06455		- 35.72729		- 35.25733		- 34.91729		- 31.66902		- 31.2561		- 30.70138	
	HQC	- 38.36489		- 38.08875		- 37.95435		- 37.69984		- 37.41082		- 37.26411		- 36.97696		- 36.81252		- 33.73317		- 33.48291		- 33.08502	
	LB	398.448	0.13 *	388.922	0.22 *	381.212	0.31 *	382.138	0.29 *	409.614	0.07 *	429.757	0.01	451.301	0.00	474.127	0.00	432.481	0.01	409.449	0.07 *	388.442	0.22 *
	LM(1)	21.065	0.18 *	22.86	0.12 *	18.446	0.30 *	22.276	0.13 *	9.579	0.89 *	8.03	0.95	19.081	0.26 *	33.475	0.01	25.022	0.07 *	15.277	0.50 *	24.229	0.08 *
	LM(4)	18.406	0.30 *	19.404	0.25 *	19.649	0.24 *	14.903	0.53 *	25.739	0.06 *	13.968	0.60 *	18.673	0.29 *	9.763	0.88 *	38.751	0.00	20.319	0.21 *	26.969	0.04
US407	Rank(s)	0		0		0		0		0		0		3		2		2		3		2	
	SBC	- 36.62913		- 36.23414		- 35.81162		- 35.30264		- 34.93682		- 34.64889		- 34.32356		- 34.04684		- 33.93813		- 33.63028		- 33.23587	
	HQC	- 37.12226		- 36.95575		- 36.75101		- 36.45		- 36.28309		- 36.18571		- 36.04318		- 35.94208		- 36.00227		- 35.8571		- 35.61951	
	LB	418.865	0.03	410.712	0.06 *	397.874	0.14 *	414.465	0.05	408.378	0.07 *	418.223	0.04	432.067	0.01	430.699	0.01	460.355	0.00	438.129	0.01	463.473	0.00
	LM(1)	33.775	0.01	14.084	0.59 *	17.917	0.33 *	29.313	0.02	22.714	0.12 *	14.699	0.55 *	18.096	0.32 *	22.204	0.14 *	21.245	0.17 *	14.277	0.58 *	10.374	0.85 *
	LM(4)	16.102	0.45 *	15.893	0.46 *	19.609	0.24 *	10.729	0.83 *	17.149	0.38 *	16.43	0.42 *	22.522	0.13 *	11.685	0.77 *	18.189	0.31 *	12.245	0.73 *	16.786	0.40 *
US408	Rank(s)	0		0		0		1		4		2		1		1		2		4		2	
	SBC	- 37.36681		- 36.98573		- 36.59277		- 36.18673		- 35.77466		- 35.39427		- 34.92008		- 34.49346		- 31.3648		- 30.93953		- 30.60719	
	HQC	- 37.85994		- 37.70734		- 37.53216		- 37.33408		- 37.12093		- 36.93109		- 36.6397		- 36.38869		- 33.42895		- 33.16635		- 32.99083	
	LB	406.922	0.08 *	439.93	0.01	426.012	0.02	418.663	0.03	417.923	0.04	404.726	0.09 *	413.597	0.05	438.669	0.01	438.384	0.01	430.395	0.01	436.256	0.01
	LM(1)	25.773	0.06 *	15.331	0.50 *	19.463	0.25 *	15.814	0.47 *	17.065	0.38 *	12.625	0.70 *	6.835	0.98	26.451	0.05	15.988	0.45 *	22.145	0.14 *	16.786	0.40 *
	LM(4)	17.135	0.38 *	14.958	0.53 *	20.346	0.21 *	13.443	0.64 *	16.61	0.41 *	27.811	0.03	16.813	0.40 *	26.491	0.05	43.856	0.00	30.816	0.01	18.435	0.30 *
US409	Rank(s)	1		3		2		4		4		3		4		4		4		4		4	
	SBC	- 37.3756		- 36.95122		- 36.64483		- 36.26634		- 35.78665		- 35.47759		- 35.04744		- 34.765		- 31.35562		- 30.87496		- 30.4941	
	HQC	- 37.86873		- 37.67283		- 37.58422		- 37.4137		- 37.13292		- 37.01441		- 36.76706		- 36.66023		- 33.41976		- 33.10177		- 32.87774	
	LB	433.893	0.01	432.357	0.01	401.099	0.11 *	410.718	0.06 *	410.12	0.06 *	415.853	0.04	429.163	0.02	466.875	0.00	459.587	0.00	454.933	0.00	482.552	0.00
	LM(1)	16.612	0.41 *	26.322	0.05	23.059	0.11 *	20.681	0.19 *	17.505	0.35 *	13.72	0.62 *	22.282	0.13 *	19.23	0.26 *	18.918	0.27 *	21.061	0.18 *	19.625	0.24 *
	LM(4)	22.933	0.12 *	19.848	0.23 *	20.062	0.22 *	9.227	0.90 *	6.434	0.98	17.7	0.34 *	21.749	0.15 *	7.758	0.96	40.584	0.00	26.313	0.05	28.441	0.03
US410	Rank(s)	0		0		0		0		0		2		4		4		3		2		2	
	SBC	- 35.24587		- 34.7001		- 34.26932		- 33.77359		- 33.38077		- 33.13689		- 32.79143		- 32.53987		- 32.40452		- 31.97516		- 31.47871	
	HQC	- 35.739		- 35.42171		- 35.20871		- 34.92095		- 34.72704		- 34.6737		- 34.51105		- 34.43511		- 34.46866		- 34.20197		- 33.86235	
	LB	391.158	0.19 *	387.498	0.23 *	402.358	0.11 *	412.081	0.06 *	417.023	0.04	429.882	0.01	443.312	0.00	434.69	0.01	458.334	0.00	473.058	0.00	469.956	0.00
	LM(1)	20.161	0.21 *	14.165	0.59 *	17.646	0.35 *	25.602	0.06 *	22.162	0.14 *	8.276	0.94 *	15.102	0.52 *	24.224	0.08 *	19.316	0.25 *	11.395	0.78 *	14.102	0.59 *
	LM(4)	12.142	0.73 *	9.296	0.90 *	8.815	0.92 *	21.926	0.15 *	31.351	0.01	6.218	0.99	10.287	0.85 *	14.435	0.57 *	17.485	0.35 *	22.034	0.14 *	13.064	0.67 *
US411	Rank(s)	0		0		0		1		2		2		2		1		2		4		2	
	SBC	- 35.94838		- 35.47969		- 35.02101		- 34.59638		- 34.10882		- 33.74506		- 33.3358		- 32.91455		- 30.07748		- 29.44263		- 28.98743	
	HQC	- 36.44151		- 36.2013		- 35.96041		- 35.74374		- 35.45509		- 35.28188		- 35.05543		- 34.80978		- 32.14163		- 31.66944		- 31.37107	
	LB	356.76	0.65 *	375.392	0.38 *	376.979	0.36 *	389.531	0.21 *	417.182	0.04	416.727	0.04	416.365	0.04	429.969	0.01	460.284	0.00	423.416	0.02	404.209	0.09 *
	LM(1)	13.992	0.60 *	12.739	0.69 *	16.196	0.44 *	17.245	0.37 *	12.655	0.70 *	11.421	0.78 *	14.374	0.57 *	18.45	0.30 *	25.095	0.07 *	26.885	0.04	11.181	0.80 *
	LM(4)	18.944	0.27 *	17.549	0.35 *	15.051	0.52 *	13.911	0.61 *	18.108	0.32 *	14.224	0.58 *	17.237	0.37 *	13.69	0.62 *	34.58	0.00	18.206	0.31 *	25.621	0.06 *
US412	Rank(s)	0		2		2		0		0		0		2		2		2		2		3	
	SBC	- 35.89697		- 35.42098		- 35.04886		- 34.62477		- 34.1003		- 33.91247		- 33.54585		- 33.29169		- 30.22186		- 29.59315		- 29.13868	
	HQC	- 36.3901		- 36.14259		- 35.98826		- 35.77213		- 35.44657		- 35.44929		- 35.26548		- 35.18692		- 32.28601		- 31.81996		- 31.52232	
	LB	427.239	0.02	431.028	0.01	427.484	0.02	441.16	0.01	449.321	0.00	464.897	0.00	470.008	0.00	491.298	0.00	509.252	0.00	491.908	0.00	498.515	0.00
	LM(1)	12.547	0.71 *	18.253	0.31 *	16.731	0.40 *	12.892	0.68 *	19.929	0.22 *	13.754	0.62 *	18.466	0.30 *	7.984	0.95	19.404	0.25 *	26.626	0.05	20.15	0.21 *
	LM(4)	19.055	0.27 *	13.853	0.61 *	11.96	0.75 *	18.098	0.32 *	24.033	0.09 *	6.582	0.98	11.142	0.80 *	12.604	0.70 *	33.641	0.01	32.42	0.01	27.49	0.04
US413	Rank(s)	0		1		1		1		2		1		2		1		0		1		1	
	SBC	- 34.76445		- 34.55181		- 34.08897		- 33.63677		- 33.13842		- 32.89331		- 32.59195		- 32.25571		- 32.06895		- 31.61825		- 31.25549	
	HQC	- 35.25758		- 35.27342		- 35.02837		- 34.78413		- 34.48468		- 34.43013		- 34.31158		- 34.15094		- 34.1331		- 33.84507		- 33.63913	
	LB	418.919	0.03	404.363	0.09 *	409.9	0.07 *	419.021	0.03	415.13	0.05	422.829	0.03	419.555	0.03	440.903	0.01	481.27	0.00	438.036	0.01	450.356	0.00
	LM(1)	37.943	0.00	15.814	0.47 *	15.986	0.45 *	14.271	0.58 *	27.984	0.03	18.075	0.32 *	9.359	0.90 *	30.599	0.02	28.77	0.03	17.23	0.37 *	13.609	0.63 *
	LM(4)	11.389	0.78 *	10.865	0.82 *	13.976	0.60 *	11.489	0.78 *	23.865	0.09 *	19.768	0.23 *	13.733	0.62 *	14.497	0.56 *	13.323	0.65 *	13.205	0.66 *	5.799	0.99
US414	Rank(s)	1		4		1		1		3		4		4		1		4		4		2	
	SBC	- 34.7305		- 34.45979		- 34.05075		- 33.6684		- 33.23689		- 33.04838		- 32.78546		- 32.5016		- 32.12391		- 31.69402		- 31.31611	
	HQC	- 35.22363		- 35.1814		- 34.99015		- 34.81576		- 34.58316		- 34.5852		- 34.50508		- 34.39683		- 34.18805		- 33.92084		- 33.69975	
	LB	474.328	0.00	444.541	0.00	449.443	0.00	469.057	0.00	461.409	0.00	474.185	0.00	479.352	0.00	481.317	0.00	522.152	0.00	490.958	0.00	525.612	0.00
	LM(1)	24.929	0.07 *	23.348	0.10 *	16.773	0.40 *	15.87	0.46 *	22.591	0.13 *	14.911	0.53 *	19.563	0.24 *	17.55	0.35 *	30.859	0.01	12.181	0.73 *	8.926	0.92 *
	LM(4)	23.044	0.11 *	19.507	0.24 *	19.907	0.22 *	27.426	0.04	33.144	0.01	22.496	0.13 *	20.352	0.20 *	14.63	0.55 *	26.806	0.04	27.942	0.03	20.849	0.18 *
US415	Rank(s)	0		1		1	*	2		4		4		3		3		3		3		3	
	SBC	- 35.467		- 35.1744		- 34.76365		- 34.42909		- 34.42909		- 33.97486		- 33.73277		- 33.39112		- 33.03847		- 30.05133		- 29.29613	
	HQC	- 35.96013		- 35.89601		- 35.70304		- 35.57645		- 35.57645		- 35.32113		- 35.26959		- 35.11075		- 34.9337		- 32.11548		- 31.52294	
	LB	422.885	0.03	428.74	0.02	415.899	0.04	441.871	0.00	441.871	0.00	447.867	0.00	460.648	0.00	444.718	0.00	482.412	0.00	529.458	0.00	460.266	0.00
	LM(1)	19.999	0.22 *	19.118	0.26 *	20.59	0.19 *	10.462	0.84 *	10.462	0.84 *	25.226	0.07 *	14.89	0.53 *	16.658	0.41 *	15.196	0.51 *	27.339	0.04	32.902	0.01
	LM(4)	13.182	0.66 *	12.881	0.68 *	18.238	0.31 *	16.261	0.43 *	16.261	0.43 *	15.18	0.51 *	14.484	0.56 *	9.276	0.90 *	13.84	0.61 *	49.8	0.00	31.619	0.01

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 15)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US416	Rank(s)	0		1		1		2		4		4		4		2		4		4		2	
	SBC	- 33.68809		- 33.17408		- 32.77554		- 32.27759		- 31.80999		- 31.44199		- 31.01392		- 30.59054		- 27.2641		- 27.2641		- 26.95545	
	HQC	- 34.18122		- 33.89569		- 33.71494		- 33.42495		- 33.15626		- 32.97881		- 32.73354		- 32.48577		- 29.32824		- 29.32824		- 29.18226	
	LB	334.681	0.89 *	348.949	0.75 *	362.48	0.57 *	373.286	0.41 *	382.973	0.28 *	395.328	0.16 *	421.22	0.03	451.133	0.00	347.547	0.77 *	347.547	0.77 *	389.788	0.21 *
	LM(1)	16.981	0.39 *	14.957	0.53 *	11.083	0.80 *	18.687	0.29 *	10.075	0.86 *	10.136	0.86 *	5.944	0.99	20.36	0.20 *	22.654	0.12 *	22.654	0.12 *	6.892	0.98
	LM(4)	11.905	0.75 *	13.994	0.60 *	11.196	0.80 *	14.809	0.54 *	19.988	0.22 *	17.191	0.37 *	16.464	0.42 *	15.733	0.47 *	27.711	0.03	27.711	0.03	12.819	0.69 *
US417	Rank(s)	0		1		1		1		1		1		4		1		4		4		4	
	SBC	- 32.67639		- 32.24867		- 31.80361		- 31.32475		- 30.87461		- 30.46801		- 30.10057		- 29.76275		- 29.61466		- 29.42026		- 29.11477	
	HQC	- 33.16952		- 32.97028		- 32.74301		- 32.47211		- 32.22088		- 32.00483		- 31.82019		- 31.65798		- 31.67881		- 31.64707		- 31.49841	
	LB	361.892	0.58 *	345.417	0.80 *	364.518	0.54 *	381.784	0.30 *	380.557	0.31 *	388.461	0.22 *	412.265	0.06 *	417.514	0.04	447.733	0.00	479.679	0.00	503.773	0.00
	LM(1)	20.998	0.18 *	7.482	0.96	15.654	0.48 *	22.91	0.12 *	9.159	0.91 *	12.055	0.74 *	5.89	0.99	31.482	0.01	21.614	0.16 *	12.368	0.72 *	10.351	0.85 *
	LM(4)	17.796	0.34 *	16.665	0.41 *	14.469	0.56 *	13.744	0.62 *	26.238	0.05	14.317	0.58 *	14.136	0.59 *	17.392	0.36 *	16.967	0.39 *	10.458	0.84 *	8.416	0.94 *
US418	Rank(s)	0		0		2		3		4		1		1		2		4		4		4	
	SBC	- 33.74579		- 33.32521		- 32.97642		- 32.5279		- 32.06619		- 31.65132		- 31.17455		- 30.79254		- 27.5363		- 27.06321		- 26.73072	
	HQC	- 34.23892		- 34.04682		- 33.91582		- 33.67525		- 33.41246		- 33.18814		- 32.89417		- 32.68778		- 29.60045		- 29.29002		- 29.11436	
	LB	362.675	0.57 *	371.54	0.44 *	381.727	0.30 *	379.893	0.32 *	384.25	0.27 *	383.024	0.28 *	401.218	0.11 *	442.617	0.00	388.757	0.22 *	377.364	0.36 *	384.005	0.27 *
	LM(1)	19.844	0.23 *	20.29	0.21 *	11.33	0.79 *	21.68	0.15 *	13.512	0.63 *	7.811	0.95	13.677	0.62 *	20.243	0.21 *	18.505	0.30 *	16.966	0.39 *	13.393	0.64 *
	LM(4)	19.587	0.24 *	18.911	0.27 *	17.857	0.33 *	14.551	0.56 *	20.205	0.21 *	19.791	0.23 *	20.807	0.19 *	26.033	0.05	18.353	0.30 *	12.416	0.71 *	11.877	0.75 *
US419	Rank(s)	1		4		4		3		4		3		4		3		4		4		4	
	SBC	- 33.40029		- 32.96058		- 32.64299		- 32.2984		- 31.84112		- 31.48977		- 31.0441		- 30.65046		- 27.18387		- 26.73292		- 26.42411	
	HQC	- 33.89342		- 33.68219		- 33.58238		- 33.44576		- 33.18739		- 33.02659		- 32.76372		- 32.54569		- 29.24802		- 28.95973		- 28.80775	
	LB	375.237	0.39 *	389.543	0.21 *	413.05	0.05	411.484	0.06 *	417.021	0.04	415.165	0.05	441.915	0.00	471.407	0.00	394.922	0.16 *	410.075	0.06 *	425.759	0.02
	LM(1)	12.343	0.72 *	23.55	0.10 *	12.91	0.68 *	16.782	0.40 *	15.855	0.46 *	8.691	0.93 *	17.47	0.36 *	19.921	0.22 *	14.248	0.58 *	12.33	0.72 *	15.952	0.46 *
	LM(4)	19.001	0.27 *	19.374	0.25 *	16.087	0.45 *	13.437	0.64 *	15.294	0.50 *	14.959	0.53 *	12.881	0.68 *	13.735	0.62 *	35.602	0.00	20.218	0.21 *	14.973	0.53 *
US420	Rank(s)	0		0		1		1		1		1		1		2		2		4		2	
	SBC	- 31.17044		- 30.67025		- 30.2156		- 29.75456		- 29.30541		- 28.95659		- 28.61108		- 28.25761		- 28.08428		- 27.71861		- 27.36004	
	HQC	- 31.66358		- 31.39186		- 31.155		- 30.90192		- 30.65168		- 30.49341		- 30.33071		- 30.15284		- 30.14842		- 29.94542		- 29.74368	
	LB	349.897	0.74 *	352.694	0.71 *	375.75	0.38 *	382.579	0.29 *	403.567	0.10 *	418.42	0.04	430	0.01	440.691	0.01	471.677	0.00	489.417	0.00	486.986	0.00
	LM(1)	18.014	0.32 *	8.961	0.92 *	15.311	0.50 *	16.224	0.44 *	8.878	0.92 *	8.059	0.95	7.626	0.96	21.515	0.16 *	27.98	0.03	22.626	0.12 *	7.039	0.97
	LM(4)	10.199	0.86 *	10.149	0.86 *	11.735	0.76 *	11.323	0.79 *	13.313	0.65 *	13.685	0.62 *	25.407	0.06 *	23.79	0.09 *	18.102	0.32 *	12.224	0.73 *	12.567	0.70 *
US421	Rank(s)	0		0		0		1		2		2		2		2		2		4		2	
	SBC	- 32.17232		- 31.70171		- 31.23927		- 30.76636		- 30.76636		- 30.29054		- 29.9255		- 29.52114		- 29.0876		- 26.30888		- 25.58213	
	HQC	- 32.66545		- 32.42332		- 32.17866		- 31.91372		- 31.91372		- 31.63681		- 31.46232		- 31.24077		- 30.98284		- 28.37302		- 27.80894	
	LB	334.139	0.90 *	339.916	0.85 *	367.661	0.50 *	377.967	0.35 *	377.967	0.35 *	407.162	0.08 *	428.736	0.02	456.03	0.00	481.127	0.00	443.135	0.00	360.828	0.60 *
	LM(1)	16.421	0.42 *	9.415	0.90 *	11.135	0.80 *	13.328	0.65 *	13.328	0.65 *	12.257	0.73 *	9.314	0.90 *	11.906	0.75 *	16.742	0.40 *	27.129	0.04	31.632	0.01
	LM(4)	12.086	0.74 *	16.231	0.44 *	12.964	0.68 *	15.964	0.46 *	15.964	0.46 *	21.182	0.17 *	22.411	0.13 *	31.222	0.01	22.043	0.14 *	17.358	0.36 *	6.293	0.98
US422	Rank(s)	0		1		1		1		1		1		1		1		2		4		2	
	SBC	- 31.77322		- 31.34458		- 30.97517		- 30.59314		- 30.03963		- 29.75078		- 29.37631		- 28.97561		- 26.00261		- 25.3863		- 25.13667	
	HQC	- 32.26635		- 32.06619		- 31.91456		- 31.74049		- 31.3859		- 31.2876		- 31.09594		- 30.87084		- 28.06676		- 27.61312		- 27.52031	
	LB	383.269	0.28 *	413.401	0.05	429.376	0.01	423.512	0.02	430.147	0.01	436.211	0.01	459.248	0.00	476.77	0.00	473.025	0.00	439.758	0.01	444.17	0.00
	LM(1)	15.864	0.46 *	16.294	0.43 *	12.477	0.71 *	7.528	0.96	12.392	0.72 *	9.769	0.88 *	8.289	0.94 *	16.563	0.41 *	23.762	0.09 *	22.172	0.14 *	10.075	0.86 *
	LM(4)	17.111	0.38 *	15.489	0.49 *	12.145	0.73 *	16.068	0.45 *	13.784	0.61 *	15.735	0.47 *	20.238	0.21 *	18.971	0.27 *	28.575	0.03	19.814	0.23 *	15.473	0.49 *
US423	Rank(s)	0		1		1		1		0		0		1		0		1		2		2	
	SBC	- 31.1418		- 30.84807		- 30.48971		- 29.99212		- 29.99212		- 29.46404		- 29.04284		- 28.69346		- 28.39438		- 28.38693		- 27.89066	
	HQC	- 31.63493		- 31.56969		- 31.42911		- 31.13948		- 31.13948		- 30.81031		- 30.57966		- 30.41308		- 30.28961		- 30.45107		- 30.11747	
	LB	384.42	0.27 *	371.993	0.43 *	380.342	0.32 *	403.799	0.10 *	403.799	0.10 *	408.653	0.07 *	408.143	0.07 *	410.781	0.06 *	425.965	0.02	436.765	0.01	396.229	0.15 *
	LM(1)	26.491	0.05	16.543	0.42 *	10.669	0.83 *	14.609	0.55 *	14.609	0.55 *	7.546	0.96	10.765	0.82 *	13.909	0.61 *	37.86	0.00	20.712	0.19 *	25.627	0.06 *
	LM(4)	16.381	0.43 *	15.309	0.50 *	13.095	0.67 *	13.581	0.63 *	13.581	0.63 *	19.407	0.25 *	16.831	0.40 *	14.312	0.58 *	18.236	0.31 *	15.472	0.49 *	15.229	0.51 *
US424	Rank(s)	2		2		2		2		1		2		1		1		2		2		2	
	SBC	- 30.80163		- 30.49312		- 30.05447		- 29.72553		- 29.288		- 28.90661		- 28.57239		- 28.27129		- 28.03817		- 27.65276		- 27.34006	
	HQC	- 31.29476		- 31.21473		- 30.99387		- 30.87288		- 30.63426		- 30.44343		- 30.29201		- 30.16652		- 30.10231		- 29.87957		- 29.7237	
	LB	431.544	0.01	430.582	0.01	445.679	0.00	451.525	0.00	460.967	0.00	468.086	0.00	490.824	0.00	485.454	0.00	487.332	0.00	482.169	0.00	510.615	0.00
	LM(1)	25.243	0.07 *	8.485	0.93 *	23.019	0.11 *	14.531	0.56 *	8.924	0.92 *	16.328	0.43 *	13.427	0.64 *	27.196	0.04	35.03	0.00	16.419	0.42 *	8.018	0.95
	LM(4)	21.377	0.16 *	19.73	0.23 *	13.706	0.62 *	15.686	0.48 *	11.198	0.80 *	14.643	0.55 *	18.283	0.31 *	13.901	0.61 *	15.42	0.49 *	11.646	0.77 *	14.274	0.58 *
US425	Rank(s)	0		1		2		2		2		4		4		2		2		4		4	
	SBC	- 31.85998		- 31.51215		- 31.17077		- 30.82671		- 30.82671		- 30.28746		- 29.95766		- 29.60011		- 29.28923		- 26.23426		- 25.39809	
	HQC	- 32.35311		- 32.23376		- 32.11017		- 31.97407		- 31.97407		- 31.63373		- 31.49448		- 31.31974		- 31.18446		- 28.2984		- 27.6249	
	LB	398.794	0.13 *	407.322	0.08 *	419.515	0.03	451.648	0.00	451.648	0.00	458.721	0.00	469.846	0.00	488.054	0.00	502.876	0.00	491.132	0.00	377.783	0.35 *
	LM(1)	19.543	0.24 *	15.611	0.48 *	15.305	0.50 *	5.48	0.99	5.48	0.99	14.802	0.54 *	13.842	0.61 *	13.221	0.66 *	20.511	0.20 *	25.524	0.06 *	35.284	0.00
	LM(4)	14.636	0.55 *	15.513	0.49 *	13.196	0.66 *	13.55	0.63 *	13.55	0.63 *	14.216	0.58 *	12.035	0.74 *	18.783	0.28 *	16.108	0.45 *	25.191	0.07 *	8.157	0.94 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 16)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US426	Rank(s)	0		0		1		1		1		1		2		2		2		2		2	
	SBC	- 33.81217		- 33.25229		- 32.89498		- 32.30839		- 31.98142		- 31.67108		- 31.3429		- 31.09305		- 30.88964		- 30.62474		- 36.77369	
	HQC	- 34.3053		- 33.9739		- 33.83438		- 33.45575		- 33.32769		- 33.2079		- 33.06252		- 32.98828		- 32.95379		- 32.85155		- 30.03496	
	LB	332.341	0.91 *	338.14	0.87 *	337.093	0.87 *	356.13	0.66 *	388.052	0.23 *	395.324	0.16 *	399.729	0.12 *	390.341	0.20 *	415.458	0.04	451.821	0.00	460.023	0.00
	LM(1)	25.375	0.06 *	16.751	0.40 *	5.374	0.99	28.868	0.02	17.713	0.34 *	12.331	0.72 *	10.641	0.83 *	20.106	0.22 *	19.192	0.26 *	9.996	0.87 *	17.418	0.36 *
	LM(4)	7.47	0.96	6.091	0.99	6.881	0.98	8.239	0.94 *	15.056	0.52 *	8.407	0.94 *	11.555	0.77 *	17.073	0.38 *	8.224	0.94 *	10.204	0.86 *	15.41	0.49 *
US427	Rank(s)	0		1		1		2		2		3		4		1		2		2		1	
	SBC	- 34.50107		- 33.9749		- 33.56935		- 33.10152		- 32.67122		- 32.29058		- 31.86407		- 31.43546		- 28.23481		- 27.8241		- 27.33985	
	HQC	- 34.9942		- 34.69651		- 34.50875		- 34.24887		- 34.01749		- 33.8274		- 33.58369		- 33.3307		- 30.29895		- 30.05091		- 29.72349	
	LB	341.022	0.84 *	359.786	0.61 *	366.144	0.52 *	369.163	0.47 *	403.913	0.10 *	382.083	0.30 *	388.222	0.22 *	445.164	0.00	387.778	0.23 *	395.817	0.15 *	387.874	0.23 *
	LM(1)	14.423	0.57 *	17.488	0.35 *	14.191	0.58 *	21.146	0.17 *	14.125	0.59 *	8.548	0.93 *	9.861	0.87 *	21.735	0.15 *	18.086	0.32 *	10.671	0.83 *	13.351	0.65 *
	LM(4)	18.894	0.27 *	19.033	0.27 *	19.968	0.22 *	23.966	0.09 *	23.125	0.11 *	16.818	0.40 *	17.738	0.34 *	12.197	0.73 *	28.107	0.03	16.147	0.44 *	11.032	0.81 *
US428	Rank(s)	1		2		3		1		1		1		1		1		2		2		2	
	SBC	- 34.44202		- 33.9448		- 33.67026		- 33.23086		- 32.78705		- 32.45133		- 32.06441		- 31.75768		- 28.35964		- 28.03287		- 27.51483	
	HQC	- 34.93515		- 34.66641		- 34.60966		- 34.37822		- 34.13332		- 33.98815		- 33.78403		- 33.65292		- 30.42379		- 30.25968		- 29.89847	
	LB	362.311	0.57 *	376.215	0.37 *	369.574	0.47 *	373.092	0.42 *	394.668	0.16 *	391.992	0.19 *	409.31	0.07 *	453.761	0.00	376.376	0.37 *	394.182	0.17 *	384.795	0.26 *
	LM(1)	13.429	0.64 *	24.757	0.07 *	9.144	0.91 *	19.888	0.23 *	14.613	0.55 *	11.812	0.76 *	16.102	0.45 *	11.777	0.76 *	28.117	0.03	13.416	0.64 *	29.484	0.02
	LM(4)	13.547	0.63 *	11.696	0.76 *	13.385	0.64 *	20.879	0.18 *	18.627	0.29 *	12.659	0.70 *	18.449	0.30 *	11.658	0.77 *	43.635	0.00	12.391	0.72 *	23.969	0.09 *
US429	Rank(s)	0		1		1		1		1		0		1		1		1		2		2	
	SBC	- 33.47253		- 33.11857		- 32.69946		- 32.23613		- 31.81732		- 31.50293		- 31.15695		- 30.76104		- 30.63937		- 30.26289		- 29.91463	
	HQC	- 33.96566		- 33.84018		- 33.63886		- 33.38349		- 33.16359		- 33.03975		- 32.87657		- 32.65627		- 32.70352		- 32.4897		- 32.29827	
	LB	381.545	0.30 *	372.004	0.43 *	384.574	0.27 *	397.945	0.14 *	404.233	0.09 *	392.76	0.18 *	405.968	0.08 *	402.504	0.10 *	427.991	0.02	438.934	0.01	448.929	0.00
	LM(1)	31.871	0.01	7.88	0.95	13.343	0.65 *	23.803	0.09 *	21.939	0.15 *	10.159	0.86 *	7.704	0.96	29.529	0.02	10.412	0.84 *	13.978	0.60 *	15.184	0.51 *
	LM(4)	22.056	0.14 *	17.604	0.35 *	18.204	0.31 *	9.2	0.90 *	16.733	0.40 *	19.433	0.25 *	14.537	0.56 *	17.286	0.37 *	15.228	0.51 *	12.388	0.72 *	13.133	0.66 *
US430	Rank(s)	1		1		1		1		1		2		1		1		2		4		2	
	SBC	- 33.38406		- 33.02273		- 32.65498		- 32.33125		- 31.98218		- 31.61433		- 31.27347		- 30.99554		- 30.6729		- 30.4439		- 29.98815	
	HQC	- 33.87719		- 33.74434		- 33.59437		- 33.4786		- 33.32845		- 33.15115		- 32.99309		- 32.89077		- 32.73705		- 32.67071		- 32.37179	
	LB	386.862	0.24 *	375.834	0.38 *	374.402	0.40 *	385.471	0.26 *	399.962	0.12 *	403.928	0.10 *	423.171	0.02	420.349	0.03	439.752	0.01	472.62	0.00	507.041	0.00
	LM(1)	21.67	0.15 *	15.642	0.48 *	26.249	0.05	19.067	0.27 *	10.463	0.84 *	13.309	0.65 *	11.446	0.78 *	14.974	0.53 *	16.399	0.43 *	12.303	0.72 *	15.474	0.49 *
	LM(4)	19.635	0.24 *	23.499	0.10 *	23.321	0.11 *	13.618	0.63 *	10.847	0.82 *	20.591	0.19 *	18.194	0.31 *	13.715	0.62 *	10.555	0.84 *	11.261	0.79 *	15.385	0.50 *
US431	Rank(s)	1		1		4		4		3		3		3		3		4		4		4	
	SBC	- 34.19622		- 33.81048		- 33.47822		- 33.21912		- 32.81033		- 32.47303		- 31.99158		- 31.6215		- 28.26994		- 27.73662		- 27.35729	
	HQC	- 34.68935		- 34.53209		- 34.41762		- 34.36648		- 34.1566		- 34.00985		- 33.71121		- 33.51673		- 30.33409		- 29.96344		- 29.74093	
	LB	375.951	0.38 *	391.717	0.19 *	391.305	0.19 *	386.163	0.25 *	411.342	0.06 *	389.611	0.21 *	396.887	0.14 *	441.842	0.00	410.559	0.06 *	430.117	0.01	423.012	0.03
	LM(1)	13.78	0.62 *	24.661	0.08 *	24.448	0.08 *	16.432	0.42 *	17.712	0.34 *	8.934	0.92 *	10.965	0.81 *	13.235	0.66 *	12.732	0.69 *	15.791	0.47 *	11.601	0.77 *
	LM(4)	21.414	0.16 *	23.518	0.10 *	24.762	0.07 *	8.783	0.92 *	9.109	0.91 *	10.944	0.81 *	7.334	0.97	11.235	0.79 *	20.886	0.18 *	28.953	0.02	26.651	0.05
US432	Rank(s)	0		0		1		1		1		2		4		2		2		2		2	
	SBC	- 31.95034		- 31.39171		- 30.98753		- 30.47377		- 30.04456		- 29.74057		- 29.38918		- 29.10988		- 28.92403		- 28.46006		- 28.07346	
	HQC	- 32.44347		- 32.11332		- 31.92693		- 31.62113		- 31.39083		- 31.27739		- 31.1088		- 31.00511		- 30.98817		- 30.68687		- 30.4571	
	LB	340.614	0.84 *	340.211	0.85 *	356.425	0.66 *	370.272	0.46 *	403.827	0.10 *	402.608	0.10 *	402.021	0.11 *	421.815	0.03	460.449	0.00	451.962	0.00	452.993	0.00
	LM(1)	15.585	0.48 *	17.199	0.37 *	12.534	0.71 *	19.028	0.27 *	13.443	0.64 *	7.894	0.95	11.994	0.74 *	17.846	0.33 *	17.633	0.35 *	23.025	0.11 *	12.744	0.69 *
	LM(4)	13.256	0.65 *	11.192	0.80 *	12.398	0.72 *	12.258	0.73 *	16.782	0.40 *	14.718	0.55 *	13.689	0.62 *	14.492	0.56 *	10.003	0.87 *	12.871	0.68 *	14.981	0.53 *
US433	Rank(s)	1		1		1		1		1		2		2		2		1		2		2	
	SBC	- 31.85416		- 31.40318		- 31.08428		- 30.68147		- 30.30086		- 30.11666		- 29.78154		- 29.50601		- 29.12978		- 28.82049		- 28.29112	
	HQC	- 32.34729		- 32.12479		- 32.02368		- 31.82883		- 31.64713		- 31.65348		- 31.50116		- 31.40124		- 31.19393		- 31.04731		- 30.67476	
	LB	389.451	0.21 *	406.669	0.08 *	418.494	0.04	420.595	0.03	415.48	0.04	440.639	0.01	453.21	0.00	455.964	0.00	477.459	0.00	455.592	0.00	473.26	0.00
	LM(1)	15.771	0.47 *	16.11	0.45 *	13.727	0.62 *	12.037	0.74 *	22.809	0.12 *	11.832	0.76 *	11.953	0.75 *	11.9	0.75 *	32.543	0.01	16.41	0.42 *	18.17	0.31 *
	LM(4)	11.526	0.78 *	10.258	0.85 *	9.178	0.91 *	13.038	0.67 *	14.528	0.56 *	9.105	0.91 *	15.235	0.51 *	17.409	0.36 *	14.971	0.53 *	19.648	0.24 *	17.898	0.33 *
US434	Rank(s)	1		1		1		1		0		1		1		1		2		3		3	
	SBC	- 32.56176		- 32.10063		- 31.72914		- 31.31899		- 30.80126		- 30.50558		- 30.13919		- 29.81005		- 26.83951		- 26.25396		- 25.86352	
	HQC	- 33.05489		- 32.82224		- 32.66853		- 32.46635		- 32.14753		- 32.0424		- 31.85881		- 31.70528		- 28.90366		- 28.48077		- 28.24716	
	LB	369.385	0.47 *	386.475	0.24 *	398.883	0.13 *	402.72	0.10 *	427.963	0.02	430.838	0.01	446.81	0.00	477.961	0.00	454.157	0.00	420.23	0.03	403.058	0.10 *
	LM(1)	12.415	0.71 *	15.042	0.52 *	12.763	0.69 *	10.615	0.83 *	15.955	0.46 *	9.598	0.89 *	13.451	0.64 *	13.399	0.64 *	29.499	0.02	30.098	0.02	20.048	0.22 *
	LM(4)	14.464	0.56 *	12.941	0.68 *	12.01	0.74 *	9.713	0.88 *	12.824	0.69 *	17.353	0.36 *	20.105	0.22 *	11.328	0.79 *	29.588	0.02	18.243	0.31 *	24.531	0.08 *
US435	Rank(s)	1		2		2		2		2		3		4		2		2		4		4	
	SBC	- 31.52258		- 31.28764		- 30.89455		- 30.57004		- 30.14643		- 29.92348		- 29.63264		- 29.3258		- 29.07338		- 28.58081		- 28.22612	
	HQC	- 32.01571		- 32.00925		- 31.83395		- 31.7174		- 31.4927		- 31.4603		- 31.35226		- 31.22104		- 31.13752		- 30.80762		- 30.60976	
	LB	418.597	0.04	396.786	0.14 *	414.198	0.05	430.76	0.01	451.948	0.00	447.531	0.00	447.652	0.00	449.397	0.00	475.369	0.00	459.279	0.00	478.089	0.00
	LM(1)	29.427	0.02	11.807	0.76 *	19.733	0.23 *	9.573	0.89 *	25.292	0.06 *	10.993	0.81 *	15.077	0.52 *	23.536	0.10 *	23.478	0.10 *	13.806	0.61 *	12.207	0.73 *
	LM(4)	17.281	0.37 *	16.592	0.41 *	18.778	0.28 *	14.691	0.55 *	16.153	0.44 *	9.172	0.91 *	9.566	0.89 *	9.492	0.89 *	12.192	0.73 *	15.702	0.47 *	16.176	0.44 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 17)

Combination	1	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US501	Rank(s)	1		1		1		2		2		3		2		2		3		5		4	
	SBC	- 43.43879		- 42.82851		- 42.24787		- 41.54082		- 41.05229		- 40.21198		- 39.7581		- 39.28965		- 36.60558		- 35.59009		- 34.9434	
	HQC	- 44.2618		- 44.0221		- 43.7889		- 43.40866		- 43.22845		- 42.67976		- 42.50242		- 42.29677		- 39.86298		- 39.08628		- 38.66784	
	LB	555.794	0.04	561.083	0.13 *	598.168	0.01	599.582	0.01	611.275	0.01	623.488	0.02	639.534	0.00	678.516	0.00	754.13	0.00	758.286	0.00	751.492	0.00
	LM(1)	44.323	0.01	28.118	0.30 *	20.848	0.70 *	29.403	0.25 *	27.29	0.34 *	30.572	0.20 *	20.382	0.73 *	23.312	0.56 *	127.49	0.00	22.332	0.62 *	17.479	0.86 *
	LM(4)	26.716	0.37 *	21.068	0.69 *	18.096	0.84 *	33.188	0.13 *	31.137	0.18 *	37.07	0.06 *	29.715	0.24 *	21.081	0.69 *	36.888	0.06 *	32.799	0.14 *	23.795	0.53 *
US502	Rank(s)	1		1		1		2		2		2		2		2		3		3		4	
	SBC	- 46.25645		- 45.56909		- 44.91625		- 44.27444		- 43.7996		- 43.0987		- 42.58626		- 42.00301		- 39.02035		- 38.12205		- 37.65309	
	HQC	- 47.07946		- 46.76268		- 46.45728		- 46.14228		- 45.97576		- 45.56649		- 45.33058		- 45.01013		- 42.27775		- 41.61824		- 41.37753	
	LB	553.118	0.05	587.012	0.03	591.52	0.02	584.736	0.04	608.323	0.01	632.762	0.01	627.054	0.01	670.248	0.00	730.198	0.00	729.076	0.00	744.76	0.00
	LM(1)	43.327	0.01	31.496	0.17 *	27.783	0.32 *	26.472	0.38 *	28.03	0.31 *	26.586	0.38 *	21.222	0.68 *	29.357	0.25 *	117.872	0.00	33.061	0.13 *	22.202	0.62 *
	LM(4)	38.499	0.04	30.296	0.21 *	28.748	0.27 *	23.023	0.58 *	23.727	0.54 *	19.105	0.79 *	25.979	0.41 *	12.442	0.98	24.306	0.50 *	30.462	0.21 *	33.47	0.12 *
US503	Rank(s)	1		0		0		1		2		3		3		4		3		3		3	
	SBC	- 44.80485		- 43.9522		- 43.18561		- 42.57252		- 42.04444		- 41.44701		- 40.92668		- 40.35908		- 37.66841		- 36.70925		- 35.88706	
	HQC	- 45.62786		- 45.14579		- 44.72664		- 44.44037		- 44.22059		- 43.91479		- 43.671		- 43.36621		- 40.92581		- 40.20544		- 39.6115	
	LB	516.376	0.30 *	546.24	0.25 *	560.286	0.14 *	578.908	0.05	588.223	0.03	652.336	0.00	689.527	0.00	726.508	0.00	783.079	0.00	776.856	0.00	741.643	0.00
	LM(1)	24.252	0.50 *	26.513	0.38 *	21.918	0.64 *	21.898	0.64 *	28.278	0.30 *	21.833	0.65 *	29.911	0.23 *	35.58	0.08 *	126.836	0.00	27.106	0.35 *	23.432	0.55 *
	LM(4)	28.277	0.30 *	28.146	0.30 *	27.035	0.35 *	35.157	0.09 *	35.227	0.08 *	19.213	0.79 *	24.978	0.46 *	20.147	0.74 *	32.795	0.14 *	34.859	0.09 *	33.723	0.11 *
US504	Rank(s)	1		1		1		0		1		2		4		3		2		2		2	
	SBC	- 43.56315		- 42.99373		- 42.36172		- 41.57224		- 41.11023		- 40.51219		- 40.03075		- 39.62145		- 39.46238		- 38.89405		- 38.37409	
	HQC	- 44.38617		- 44.18732		- 43.90275		- 43.44009		- 43.28639		- 42.97997		- 42.77507		- 42.62858		- 42.71978		- 42.39024		- 42.09853	
	LB	583.671	0.01	581.212	0.04	596.525	0.02	604.28	0.01	612.993	0.00	652.095	0.00	702.275	0.00	700.706	0.00	715.861	0.00	735.178	0.00	766.787	0.00
	LM(1)	55.998	0.00	27.082	0.35 *	20.582	0.72 *	33.218	0.13 *	31.788	0.16 *	27.504	0.33 *	23.344	0.56 *	48.46	0.00	41.231	0.02	26.62	0.38 *	13.61	0.97
	LM(4)	31.499	0.17 *	22.212	0.62 *	20.587	0.72 *	36.754	0.06 *	42.797	0.01	24.4	0.50 *	16.243	0.91 *	17.965	0.84 *	19.125	0.79 *	23.497	0.55 *	20.2	0.74 *
US505	Rank(s)	0		1		0		1		2		2		2		1		2		4		2	
	SBC	- 44.19447		- 43.7258		- 42.95629		- 42.32763		- 41.8909		- 41.16565		- 40.74551		- 40.16387		- 37.5347		- 36.56855		- 35.9333	
	HQC	- 45.01748		- 44.91939		- 44.49733		- 44.19548		- 44.06706		- 43.63344		- 43.48983		- 43.17099		- 40.7921		- 40.06474		- 39.65774	
	LB	526.721	0.20 *	548.39	0.23 *	582.849	0.04	595.427	0.02	628.851	0.00	662.178	0.00	634.494	0.01	690.844	0.00	777.338	0.00	767.553	0.00	748.953	0.00
	LM(1)	44.751	0.01	22.67	0.60 *	19.291	0.78 *	29.866	0.23 *	24.766	0.48 *	37.269	0.05	14.261	0.96	22.359	0.61 *	106.096	0.00	33.029	0.13 *	19.155	0.79 *
	LM(4)	26.189	0.40 *	20.419	0.72 *	24.059	0.52 *	29.963	0.23 *	29.081	0.26 *	30.613	0.20 *	27.15	0.35 *	21.027	0.69 *	54.299	0.00	42.408	0.02	31.45	0.17 *
US506	Rank(s)	2		2		1		2		2		4		4		5		5		5		5	
	SBC	- 44.29712		- 43.6629		- 43.06275		- 42.47793		- 41.80731		- 41.28769		- 40.92848		- 40.51209		- 37.7317		- 36.53848		- 35.88906	
	HQC	- 45.12013		- 44.85649		- 44.60378		- 44.34578		- 43.98347		- 43.75547		- 43.6728		- 43.51922		- 40.9891		- 40.03467		- 39.6135	
	LB	591.479	0.00	589.343	0.03	587.389	0.03	598.207	0.01	625.137	0.00	663.279	0.00	674.455	0.00	710.305	0.00	840.706	0.00	806.656	0.00	846.737	0.00
	LM(1)	43.568	0.01	37.377	0.05	31.625	0.17 *	24.073	0.52 *	33.054	0.13 *	30.2	0.22 *	25.407	0.44 *	16.743	0.89 *	87.846	0.00	26.747	0.37 *	19.603	0.77 *
	LM(4)	37.877	0.05	29.561	0.24 *	29.964	0.23 *	34.479	0.10 *	31.347	0.18 *	32.616	0.14 *	25.228	0.45 *	17.156	0.88 *	47.666	0.00	39.639	0.03	34.558	0.10 *
US507	Rank(s)	1		1		1		3		3		3		2		2		5		5		5	
	SBC	- 42.07401		- 41.33167		- 40.7457		- 40.07037		- 39.57805		- 38.82681		- 38.27429		- 37.69055		- 34.54538		- 33.74927		- 33.31947	
	HQC	- 42.89702		- 42.52526		- 42.28673		- 41.93822		- 41.7542		- 41.2946		- 41.01861		- 40.69767		- 37.80278		- 37.24547		- 37.0439	
	LB	498.215	0.51 *	522.846	0.52 *	583.064	0.04	555.603	0.17 *	578.398	0.05	595.014	0.09 *	609.666	0.04	648.305	0.00	643.412	0.00	678.892	0.00	708.961	0.00
	LM(1)	55.699	0.00	29.11	0.26 *	24.304	0.50 *	21.336	0.67 *	25.336	0.44 *	18.919	0.80 *	11.44	0.99	45.37	0.01	158.96	0.00	18.63	0.81 *	19.048	0.79 *
	LM(4)	28.372	0.29 *	32.598	0.14 *	26.916	0.36 *	28.797	0.27 *	43.392	0.01	28.008	0.31 *	30.16	0.22 *	30.154	0.22 *	48.999	0.00	26.129	0.40 *	20.768	0.71 *
US508	Rank(s)	1		0		1		2		2		3		3		2		3		5		3	
	SBC	- 40.51226		- 39.64926		- 38.99942		- 38.30462		- 37.73825		- 37.01014		- 36.53725		- 35.93883		- 33.40993		- 32.49557		- 31.84909	
	HQC	- 41.33528		- 40.84285		- 40.54045		- 40.17246		- 39.9144		- 39.47793		- 39.28157		- 38.94595		- 36.66732		- 35.99176		- 35.57353	
	LB	477.679	0.76 *	494.619	0.83 *	537.154	0.35 *	565.429	0.11 *	595.841	0.02	640.48	0.00	669.14	0.00	709.798	0.00	782.36	0.00	760.598	0.00	753.06	0.00
	LM(1)	32.693	0.14 *	24.174	0.51 *	22.248	0.62 *	17.763	0.85 *	16.026	0.91 *	16.733	0.89 *	13.07	0.98	24.849	0.47 *	99.225	0.00	29.226	0.25 *	12.699	0.98
	LM(4)	23.423	0.55 *	21.426	0.67 *	20.891	0.70 *	24.952	0.47 *	17.236	0.87 *	31.463	0.17 *	43.488	0.01	36.471	0.06 *	29.49	0.24 *	32.75	0.14 *	25.855	0.42 *
US509	Rank(s)	1		2		1		1		1		1		1		1		2		3		3	
	SBC	- 39.42087		- 38.85281		- 38.24083		- 37.53582		- 36.99446		- 36.14812		- 35.63191		- 35.13707		- 35.23768		- 34.86733		- 34.20886	
	HQC	- 40.24388		- 40.0464		- 39.78186		- 39.40367		- 39.17062		- 38.61591		- 38.37623		- 38.14419		- 38.49507		- 38.36352		- 37.93329	
	LB	541.175	0.10 *	533.209	0.39 *	588.08	0.03	574.193	0.07 *	595.533	0.02	637.099	0.01	654.5	0.00	649.76	0.00	663.605	0.00	730.372	0.00	761.033	0.00
	LM(1)	72.714	0.00	20.663	0.71 *	25.403	0.44 *	23.677	0.54 *	13.467	0.97	22.934	0.58 *	21.079	0.69 *	55.327	0.00	30.206	0.22 *	21.991	0.64 *	17.948	0.84 *
	LM(4)	31.668	0.17 *	27.078	0.35 *	21.32	0.67 *	26.327	0.39 *	26.588	0.38 *	24.814	0.47 *	23.092	0.57 *	29.523	0.24 *	21.635	0.66 *	25.677	0.42 *	15.559	0.93 *
US510	Rank(s)	1		1		1		1		1		2		2		1		2		3		2	
	SBC	- 40.59035		- 39.88102		- 39.30761		- 38.63589		- 38.03097		- 37.29992		- 36.75457		- 36.20452		- 33.69532		- 32.68496		- 31.88291	
	HQC	- 41.41336		- 41.07461		- 40.84865		- 40.50374		- 40.20712		- 39.76771		- 39.49889		- 39.21164		- 36.95272		- 36.18115		- 35.60734	
	LB	505.848	0.42 *	516.314	0.60 *	554.267	0.18 *	575.974	0.06 *	625.039	0.00	651.15	0.00	645.234	0.00	692.219	0.00	734.881	0.00	719.657	0.00	659.93	0.01
	LM(1)	60.193	0.00	33.137	0.13 *	20.982	0.69 *	15.67	0.92 *	22.89	0.58 *	24.421	0.50 *	17.132	0.88 *	41.855	0.02	109.431	0.00	25.105	0.46 *	17.727	0.85 *
	LM(4)	22.99	0.58 *	25.581	0.43 *	20.837	0.70 *	32.245	0.15 *	28.118	0.30 *	29.005	0.26 *	41.9	0.02	37.806	0.05	40.528	0.03	31.625	0.17 *	24.72	0.48 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 18)

Combination		lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US511	Rank(s)	2		3		2		3		5		4		5		5		3		5		5	
	SBC	- 40.18383		- 39.44502		- 38.90426		- 38.39428		- 37.77529		- 37.21523		- 36.75717		- 36.31443		- 33.45497		- 32.42335		- 31.78595	
	HQC	- 41.00684		- 40.63862		- 40.44529		- 40.26212		- 39.95144		- 39.68301		- 39.50149		- 39.32155		- 36.71237		- 35.91955		- 35.51039	
	LB	537.007	0.12 *	555.018	0.18 *	612.988	0.00	622.943	0.00	659.353	0.00	670.56	0.00	683.425	0.00	703.559	0.00	813.911	0.00	766.055	0.00	761.033	0.00
	LM(1)	53.94	0.00	36.269	0.07 *	31.288	0.18 *	19.458	0.77 *	26.963	0.36 *	27.91	0.31 *	23.622	0.54 *	27.148	0.35 *	140.818	0.00	24.229	0.51 *	19.752	0.76 *
	LM(4)	25.941	0.41 *	29.069	0.26 *	21.028	0.69 *	24.556	0.49 *	26.744	0.37 *	31.429	0.18 *	30.218	0.22 *	28.297	0.29 *	46.057	0.01	30.776	0.20 *	16.21	0.91 *
US512	Rank(s)	1		1		1		2		3		3		2		2		3		3		2	
	SBC	- 43.32258		- 42.44606		- 41.81762		- 41.0841		- 40.64109		- 39.90623		- 39.35626		- 38.83795		- 35.73608		- 34.96704		- 34.20497	
	HQC	- 44.14559		- 43.63965		- 43.35865		- 42.95195		- 42.81724		- 42.37402		- 42.10058		- 41.84508		- 38.99348		- 38.46323		- 37.92941	
	LB	469.322	0.83 *	503.962	0.74 *	527.064	0.47 *	538.771	0.33 *	569.469	0.09 *	626.873	0.01	635.257	0.01	675.891	0.00	662.786	0.00	693.5	0.00	687.95	0.00
	LM(1)	34.727	0.09 *	37.419	0.05	25.379	0.44 *	26.794	0.37 *	21.307	0.68 *	15.181	0.94 *	22.502	0.61 *	18.529	0.82 *	107.033	0.00	22.941	0.58 *	30.844	0.19 *
	LM(4)	20.179	0.74 *	21.615	0.66 *	24.28	0.50 *	31.771	0.16 *	30.958	0.19 *	19.696	0.76 *	21.492	0.66 *	16.253	0.91 *	37.015	0.06 *	24.831	0.47 *	33.692	0.11 *
US513	Rank(s)	1		1		1		1		0		1		1		2		2		2		3	
	SBC	- 42.19693		- 41.52935		- 40.81598		- 40.14066		- 39.67549		- 39.02711		- 38.49392		- 38.06473		- 38.0081		- 37.56277		- 37.01121	
	HQC	- 43.01995		- 42.72294		- 42.35701		- 42.0085		- 41.85164		- 41.4949		- 41.23824		- 41.07186		- 41.2655		- 41.05896		- 40.73565	
	LB	522.791	0.23 *	521.226	0.54 *	541.74	0.30 *	545.692	0.26 *	581.799	0.04	614.851	0.03	633.65	0.01	643.872	0.00	649.835	0.00	724.113	0.00	756.529	0.00
	LM(1)	79.108	0.00	26.57	0.38 *	30.481	0.21 *	29.895	0.23 *	24.986	0.46 *	21.076	0.69 *	22.132	0.63 *	47.077	0.00	32.925	0.13 *	20.186	0.74 *	19.129	0.79 *
	LM(4)	38.037	0.05	31.134	0.18 *	25.134	0.45 *	22.61	0.60 *	32.8	0.14 *	25.841	0.42 *	25.681	0.42 *	24.126	0.51 *	19.889	0.75 *	12.811	0.98	18.516	0.82 *
US514	Rank(s)	1		1		1		2		2		2		1		1		2		3		3	
	SBC	- 42.93152		- 42.3123		- 41.5627		- 41.03386		- 40.58835		- 39.84378		- 39.22599		- 38.5644		- 35.65011		- 34.73041		- 34.26609	
	HQC	- 43.75453		- 43.5059		- 43.10374		- 42.90171		- 42.7645		- 42.31156		- 41.97031		- 41.57152		- 38.90751		- 38.2266		- 37.99053	
	LB	503.756	0.44 *	537.804	0.34 *	590.076	0.03	570.814	0.08 *	610.024	0.01	612.42	0.03	591.781	0.11 *	633.395	0.01	702.664	0.00	684.945	0.00	683.109	0.00
	LM(1)	55.724	0.00	26.471	0.38 *	30.89	0.19 *	23.133	0.57 *	27.776	0.32 *	22.59	0.60 *	12.91	0.98	24.864	0.47 *	126.072	0.00	21.676	0.65 *	21.538	0.66 *
	LM(4)	31.505	0.17 *	33.321	0.12 *	31.385	0.18 *	22.331	0.62 *	30.635	0.20 *	20.079	0.74 *	31.998	0.16 *	31.363	0.18 *	48.946	0.00	33.767	0.11 *	26.373	0.39 *
US515	Rank(s)	2		1		1		3		3		2		4		3		5		5		5	
	SBC	- 42.92193		- 42.10612		- 41.54554		- 41.08915		- 40.58088		- 39.93037		- 39.41217		- 38.90889		- 35.75584		- 34.85242		- 34.26628	
	HQC	- 43.74494		- 43.29972		- 43.08657		- 42.957		- 42.75703		- 42.39815		- 42.15649		- 41.91602		- 39.01324		- 38.34861		- 37.99071	
	LB	515.039	0.31 *	528.412	0.45 *	549.298	0.22 *	562.493	0.12 *	599.482	0.01	635.316	0.01	639.263	0.00	685.957	0.00	718.317	0.00	736.357	0.00	763.472	0.00
	LM(1)	54.251	0.00	36.622	0.06 *	30.356	0.21 *	30.791	0.20 *	23.676	0.54 *	24.602	0.48 *	23.244	0.56 *	18.747	0.81 *	85.165	0.00	28.689	0.28 *	31.361	0.18 *
	LM(4)	34.347	0.10 *	31.419	0.18 *	27.565	0.33 *	21.432	0.67 *	24.718	0.48 *	21.285	0.68 *	22.155	0.63 *	22.635	0.60 *	45.656	0.01	27.746	0.32 *	30.013	0.22 *
US516	Rank(s)	1		0		1		0		0		3		2		3		3		3		3	
	SBC	- 40.67946		- 39.80284		- 39.13044		- 38.32193		- 37.838		- 37.27381		- 36.76997		- 36.32722		- 36.2484		- 35.88181		- 35.03939	
	HQC	- 41.50248		- 40.99643		- 40.67148		- 40.18978		- 40.01415		- 39.74159		- 39.51429		- 39.33435		- 39.50579		- 39.378		- 38.76383	
	LB	505.737	0.42 *	522.995	0.52 *	536.206	0.36 *	550.261	0.22 *	572.511	0.07 *	633.329	0.01	666.492	0.00	664.32	0.00	699.849	0.00	759.273	0.00	757.282	0.00
	LM(1)	43.799	0.01	36.044	0.07 *	19.164	0.79 *	20.363	0.73 *	23.616	0.54 *	16.72	0.89 *	17.174	0.88 *	44.679	0.01	32.695	0.14 *	26.368	0.39 *	28.081	0.30 *
	LM(4)	21.925	0.64 *	16.605	0.90 *	16.081	0.91 *	23.64	0.54 *	20.46	0.72 *	17.626	0.86 *	19.186	0.79 *	25.865	0.41 *	16.882	0.89 *	24.18	0.51 *	26.478	0.38 *
US517	Rank(s)	1		1		0		2		1		3		2		3		3		3		2	
	SBC	- 41.41993		- 40.51236		- 39.67903		- 39.03666		- 38.53658		- 37.78958		- 37.25851		- 36.70766		- 34.12537		- 33.18946		- 32.42019	
	HQC	- 42.24295		- 41.70595		- 41.22007		- 40.90451		- 40.71273		- 40.25736		- 40.00283		- 39.71478		- 37.38277		- 36.68565		- 36.14463	
	LB	477.069	0.76 *	496.482	0.81 *	516.31	0.60 *	555.627	0.17 *	592.174	0.02	629.959	0.01	624.919	0.01	688.668	0.00	726.497	0.00	727.342	0.00	682.565	0.00
	LM(1)	30.391	0.21 *	26.436	0.38 *	24.594	0.49 *	18.879	0.80 *	21.334	0.67 *	20.863	0.70 *	13.478	0.97	35.705	0.08 *	97.704	0.00	23.14	0.57 *	21.671	0.65 *
	LM(4)	24.065	0.52 *	23.72	0.54 *	27.73	0.32 *	21.841	0.64 *	17.611	0.86 *	25.289	0.45 *	27.472	0.33 *	22.02	0.63 *	29.016	0.26 *	24.188	0.51 *	27.7	0.32 *
US518	Rank(s)	2		1		1		2		1		1		1		1		3		3		3	
	SBC	- 41.34553		- 40.41333		- 39.77212		- 39.15493		- 38.61161		- 38.03879		- 37.63297		- 37.16027		- 34.34028		- 33.58345		- 32.8107	
	HQC	- 42.16854		- 41.60692		- 41.31315		- 41.02278		- 40.78777		- 40.50657		- 40.37729		- 40.16739		- 37.59768		- 37.07964		- 36.53514	
	LB	531.102	0.16 *	542.892	0.29 *	551.953	0.20 *	583.919	0.04	612.815	0.00	639.304	0.00	671.073	0.00	716.006	0.00	795.749	0.00	767.508	0.00	755.048	0.00
	LM(1)	24.598	0.49 *	36.82	0.06 *	23.658	0.54 *	23.011	0.58 *	26.988	0.36 *	25.746	0.42 *	20.399	0.73 *	15.305	0.93 *	60.477	0.00	35.596	0.08 *	26.65	0.37 *
	LM(4)	22.392	0.61 *	22.543	0.60 *	22.356	0.62 *	18.889	0.80 *	24.41	0.50 *	17.703	0.85 *	31.438	0.17 *	18.59	0.82 *	33.764	0.11 *	27.192	0.35 *	28.806	0.27 *
US519	Rank(s)	1		2		1		1		0		2		2		2		2		2		3	
	SBC	- 40.26881		- 39.75138		- 39.01288		- 38.34282		- 37.87021		- 37.29453		- 36.73193		- 36.291		- 36.14407		- 35.57385		- 45.54067	
	HQC	- 41.09182		- 40.94497		- 40.55392		- 40.21066		- 40.04637		- 39.76232		- 39.47625		- 39.29812		- 39.40147		- 39.07004		- 35.0114	
	LB	532.149	0.15 *	508.501	0.69 *	551.676	0.20 *	572.828	0.07 *	599.826	0.01	637.185	0.01	639.882	0.00	654.348	0.00	670.51	0.00	730.507	0.00	745.553	0.00
	LM(1)	72.829	0.00	16.338	0.90 *	26.397	0.39 *	21.443	0.67 *	35.168	0.09 *	28.334	0.29 *	17.34	0.87 *	47.316	0.00	31.227	0.18 *	34.737	0.09 *	18.719	0.81 *
	LM(4)	25.358	0.44 *	25.643	0.43 *	22.202	0.62 *	28.001	0.31 *	23.865	0.53 *	15.554	0.93 *	15.989	0.92 *	11.716	0.99	24.062	0.52 *	22.654	0.60 *	18.45	0.82 *
US520	Rank(s)	4		2		1		1		2		3		3		3		3		5		4	
	SBC	- 40.14757		- 39.58291		- 39.0473		- 38.50347		- 37.8873		- 37.46467		- 37.00613		- 36.59496		- 36.29617		- 35.9654		- 35.24965	
	HQC	- 40.97058		- 40.7765		- 40.58833		- 40.37131		- 40.06346		- 39.93246		- 39.75045		- 39.60208		- 39.55357		- 39.46159		- 38.97409	
	LB	589.489	0.00	561.72	0.13 *	581.319	0.04	594.17	0.02	620.727	0.00	661.285	0.00	679.434	0.00	696.516	0.00	724.737	0.00	801.704	0.00	819.084	0.00
	LM(1)	71.65	0.00	37.935	0.05	37.452	0.05	23.238	0.56 *	27.722	0.32 *	24.842	0.47 *	26.654	0.37 *	26.878	0.36 *	45.215	0.01	26.444	0.38 *	13.818	0.96
	LM(4)	35.655	0.08 *	27.683	0.32 *	26.401	0.39 *	35.681	0.08 *	31.606	0.17 *	26.964	0.36 *	21.531	0.66 *	23.604	0.54 *	12.759	0.98	18.905	0.80 *	28.999	0.26 *

*: 5% of upper and lower tail

Table 1: Maximum number of ranks, 2 information criterions, and Residual Analysis:p- value (Continued: 19)

Combination	1	lags2		lags3		lags4		lags5		lags6		lags7		lags8		lags9		lags10		lags11		lags12 † 2	
US521	Rank(s)	2		2		2		3		5		4		4		4		5		5		5	
	SBC	- 41.07761		- 40.3382		- 39.64192		- 39.27441		- 38.68082		- 38.23131		- 37.74742		- 37.23		- 34.46988		- 33.41019		- 32.68099	
	HQC	- 41.90062		- 41.53179		- 41.18296		- 41.14226		- 40.85697		- 40.6991		- 40.49174		- 40.23712		- 37.72728		- 36.90638		- 36.40543	
	LB	517.996	0.28 *	510.277	0.67 *	562.731	0.12 *	582.921	0.04	622.32	0.00	666.587	0.00	664.303	0.00	687.916	0.00	754.569	0.00	787.85	0.00	740.637	0.00
	LM(1)	50.635	0.00	29.849	0.23 *	34.092	0.11 *	20.478	0.72 *	31.936	0.16 *	25.83	0.42 *	14.043	0.96	23.224	0.56 *	106.047	0.00	30.786	0.20 *	21.973	0.64 *
	LM(4)	23.746	0.53 *	25.559	0.43 *	26.311	0.39 *	17.962	0.84 *	21.028	0.69 *	14.857	0.94 *	14.586	0.95	19.238	0.79 *	46.247	0.01	37.541	0.05	30.2	0.22 *
US601	Rank(s)	1		2		2		1		2		3		3		2		3		3		3	
	SBC	- 52.97126		- 52.14893		- 50.96968		- 50.02913		- 49.25417		- 48.75087		- 47.86111		- 47.34112		- 46.80058		- 43.39447		- 42.66954	
	HQC	- 54.24572		- 53.97744		- 53.30776		- 52.83846		- 52.50142		- 52.40681		- 51.89992		- 51.73984		- 51.53866		- 48.45345		- 48.03273	
	LB	720.299	0.03	728.395	0.02	786.419	0.00	779.326	0.01	840.067	0.00	878.735	0.00	930.924	0.00	970.67	0.00	1130.782	0.00	1153.994	0.00	1185.34	0.00
	LM(1)	55.195	0.02	32.134	0.65 *	44.756	0.15 *	46.341	0.12 *	53.909	0.03	38.314	0.36 *	34.185	0.56 *	41.906	0.23 *	47.103	0.10 *	36.969	0.42 *	25.873	0.89 *
	LM(4)	46.1	0.12 *	34.569	0.54 *	36.198	0.46 *	48.957	0.07 *	43.33	0.19 *	30.665	0.72 *	37.85	0.38 *	47.218	0.10 *	35.529	0.49 *	43.7	0.18 *	39.804	0.30 *
US602	Rank(s)	1		3		3		4		3		3		3		3		3		3		4	
	SBC	- 48.94963		- 48.16382		- 46.74991		- 45.89782		- 45.07581		- 44.38306		- 43.30914		- 42.74933		- 42.50935		- 39.08123		- 38.23197	
	HQC	- 50.22409		- 49.99233		- 49.08799		- 48.70714		- 48.32306		- 48.039		- 47.34795		- 47.14804		- 47.24743		- 44.14022		- 43.59516	
	LB	683.765	0.16 *	684.215	0.16 *	763.689	0.02	773.385	0.01	818.228	0.01	866.079	0.00	901.01	0.00	939.173	0.00	1069.028	0.00	1062.458	0.00	1118.665	0.00
	LM(1)	51.1	0.05	33.31	0.60 *	38.795	0.34 *	41.231	0.25 *	37.819	0.39 *	24.89	0.92 *	22.577	0.96	54.653	0.02	43.967	0.17 *	20.324	0.98	23.191	0.95
	LM(4)	37.815	0.39 *	31.746	0.67 *	26.17	0.89 *	48.441	0.08 *	50.174	0.06 *	42.134	0.22 *	55.493	0.02	50.389	0.06 *	50.175	0.06 *	31.826	0.67 *	23.769	0.94 *
US603	Rank(s)	1		1		2		2		3		3		3		3		3		3		4	
	SBC	- 51.85106		- 50.90843		- 49.55631		- 48.65358		- 47.81606		- 47.27352		- 46.27446		- 45.66015		- 45.24679		- 41.58933		- 40.91202	
	HQC	- 53.12552		- 52.73693		- 51.89439		- 51.46291		- 51.06331		- 50.92946		- 50.31327		- 50.05887		- 49.98488		- 46.64831		- 46.27521	
	LB	676.426	0.21 *	691.09	0.12 *	744.305	0.05	739.773	0.07 *	810.997	0.01	843.877	0.00	906.053	0.00	931.709	0.00	1081.959	0.00	1031.372	0.00	1101.994	0.00
	LM(1)	50.584	0.05	41.279	0.25 *	38.587	0.35 *	43.874	0.17 *	37.642	0.39 *	27.277	0.85 *	30.466	0.73 *	37.796	0.39 *	48.723	0.08 *	34.269	0.55 *	37.283	0.41 *
	LM(4)	39.74	0.31 *	34.697	0.53 *	39.444	0.32 *	39.876	0.30 *	36.462	0.45 *	37.599	0.40 *	38.977	0.34 *	36.597	0.44 *	26.861	0.87 *	33.348	0.60 *	31.8	0.67 *
US604	Rank(s)	1		1		2		1		2		3		4		3		3		4		3	
	SBC	- 50.1469		- 49.00226		- 47.74025		- 46.66516		- 45.66849		- 45.18452		- 44.27088		- 43.71888		- 43.30253		- 40.12662		- 38.96244	
	HQC	- 51.42136		- 50.83077		- 50.07833		- 49.47448		- 48.91574		- 48.84046		- 48.30969		- 48.11759		- 48.04061		- 45.1856		- 44.32563	
	LB	683.352	0.16 *	685.063	0.15 *	717.146	0.18 *	746.954	0.05	800.367	0.02	857.856	0.00	942.136	0.00	1006.813	0.00	1136.302	0.00	1109.712	0.00	1110.833	0.00
	LM(1)	43.515	0.18 *	42.202	0.22 *	33.485	0.59 *	34.577	0.54 *	32.356	0.64 *	26.215	0.88 *	32.155	0.65 *	41.987	0.23 *	53.607	0.03	32.437	0.64 *	36.297	0.45 *
	LM(4)	34.478	0.54 *	31.89	0.66 *	36.037	0.47 *	50.067	0.06 *	37.879	0.38 *	20.919	0.98	41.031	0.26 *	33.675	0.58 *	33.135	0.61 *	26.135	0.89 *	36.647	0.44 *
US605	Rank(s)	0		3		2		2		1		3		3		3		3		3		4	
	SBC	- 48.95797		- 48.41876		- 46.96787		- 46.07663		- 45.13372		- 44.67958		- 43.69215		- 43.02844		- 43.08551		- 42.80478		- 41.81675	
	HQC	- 50.23242		- 50.24727		- 49.30594		- 48.88596		- 48.38096		- 48.33551		- 47.73096		- 47.42716		- 47.82359		- 47.86377		- 47.17995	
	LB	707.568	0.05	697.752	0.09 *	776.844	0.01	760.455	0.02	825.406	0.00	890.29	0.00	943.3	0.00	971.217	0.00	1011.535	0.00	1111.944	0.00	1154.693	0.00
	LM(1)	72.169	0.00	31.947	0.66 *	42.542	0.21 *	39.507	0.32 *	49.71	0.06 *	28.804	0.80 *	27.469	0.85 *	66.789	0.00	54.454	0.02	18.397	0.99	22.526	0.96
	LM(4)	38.649	0.35 *	36.882	0.43 *	32.709	0.63 *	43.492	0.18 *	46.151	0.12 *	37.399	0.40 *	29.765	0.76 *	29.343	0.78 *	29.347	0.78 *	30.52	0.73 *	29.809	0.76 *
US606	Rank(s)	1		2		3		3		2		3		3		2		2		3		4	
	SBC	- 49.73092		- 49.06101		- 47.61671		- 46.61827		- 45.82996		- 45.36951		- 44.53787		- 43.76361		- 43.49128		- 39.99149		- 39.15313	
	HQC	- 51.00538		- 50.88952		- 49.95479		- 49.4276		- 49.07721		- 49.02545		- 48.57668		- 48.16232		- 48.22937		- 45.05048		- 44.51632	
	LB	698.662	0.08 *	678.855	0.19 *	736.19	0.08 *	746.141	0.05	827.85	0.00	850.322	0.00	917.45	0.00	938.718	0.00	1074.105	0.00	1068.501	0.00	1124.539	0.00
	LM(1)	65.822	0.00	26.211	0.88 *	40.496	0.28 *	28.746	0.80 *	43.479	0.18 *	28.356	0.81 *	23.45	0.95	47.415	0.10 *	44.675	0.15 *	30.814	0.71 *	24.868	0.92 *
	LM(4)	36.452	0.45 *	39.291	0.32 *	35.905	0.47 *	43.351	0.19 *	38.947	0.34 *	41.92	0.23 *	38.276	0.37 *	36.234	0.46 *	33.679	0.58 *	37.858	0.38 *	33.58	0.58 *
US607	Rank(s)	1		2		3		2		3		3		4		4		5		5		5	
	SBC	- 49.88287		- 49.073		- 47.69604		- 46.78747		- 45.98203		- 45.39293		- 44.6339		- 44.14828		- 43.59829		- 40.27936		- 39.17308	
	HQC	- 51.15733		- 50.9015		- 50.03411		- 49.5968		- 49.22928		- 49.04887		- 48.67271		- 48.547		- 48.33637		- 45.33834		- 44.53627	
	LB	722.851	0.02	715.795	0.03	740.215	0.07 *	770.543	0.01	854.905	0.00	874.41	0.00	925.137	0.00	970.707	0.00	1083.04	0.00	1137.087	0.00	1183.312	0.00
	LM(1)	57.673	0.01	40.101	0.29 *	49.851	0.06 *	44.297	0.16 *	42.513	0.21 *	36.232	0.46 *	29.172	0.78 *	26.2	0.88 *	44.412	0.16 *	29.458	0.77 *	28.858	0.80 *
	LM(4)	41.93	0.23 *	35.327	0.50 *	37.222	0.41 *	35.617	0.49 *	40.143	0.29 *	37.101	0.42 *	28.328	0.82 *	32.176	0.65 *	18.769	0.99	34.53	0.54 *	40.849	0.27 *
US701	Rank(s)	2		3		4		5		6		5		4		4		4		4		5	
	SBC	- 58.62066		- 57.11364		- 55.56425		- 54.21251		- 52.91793		- 52.19556		- 51.35529		- 50.464		- 50.07755		- 46.60443		- 45.63079	
	HQC	- 60.50183		- 59.77712		- 58.93118		- 58.21766		- 57.5065		- 57.32093		- 56.97734		- 56.54789		- 56.59273		- 53.52395		- 52.93069	
	LB	810.906	0.03	844.066	0.07 *	947.696	0.00	1015.713	0.00	1044.34	0.00	1105.948	0.00	1220.592	0.00	1347.594	0.00	1457.709	0.00	1596.305	0.00	1634.342	0.00
	LM(1)	65.191	0.06 *	53.879	0.29 *	49.472	0.45 *	48.787	0.48 *	55.939	0.23 *	49.027	0.47 *	51.179	0.39 *	65.738	0.06 *	58.84	0.16 *	46.763	0.56 *	36.662	0.90 *
	LM(4)	43.693	0.69 *	42.57	0.73 *	40.216	0.81 *	57.669	0.19 *	53.758	0.30 *	43.768	0.68 *	46.052	0.59 *	54.501	0.27 *	35.849	0.92 *	47.51	0.53 *	39.033	0.85 *

*: 5% of upper and lower tail

1: Combination

CB/US301 : Korea + Singapore + Indonesia
CB/US302 : Korea + Singapore + Malaysia
CB/US303 : Korea + Indonesia + Malaysia
CB/US304 : Singapore + Indonesia + Malaysia
CB/US305 : Korea + Singapore + The Philippines
CB/US306 : Korea + Indonesia + The Philippines
CB/US307 : Singapore + Indonesia + The Philippines
CB/US308 : Korea + Malaysia + The Philippines
CB/US309 : Singapore + Malaysia + The Philippines
CB/US310 : Indonesia + Malaysia + The Philippines
CB/US311 : Korea + Singapore + Thailand
CB/US312 : Korea + Indonesia + Thailand
CB/US313 : Singapore + Indonesia + Thailand
CB/US314 : Korea + Malaysia + Thailand
CB/US315 : Singapore + Malaysia + Thailand
CB/US316 : Indonesia + Malaysia + Thailand
CB/US317 : Korea + The Philippines + Thailand
CB/US318 : Singapore + The Philippines + Thailand
CB/US319 : Indonesia + The Philippines + Thailand
CB/US320 : Malaysia + The Philippines + Thailand
CB/US321 : The Philippines + Thailand + China
CB/US322 : Malaysia + Thailand + China
CB/US323 : Indonesia + Thailand + China
CB/US324 : Singapore + Thailand + China
CB/US325 : Korea + Thailand + China
CB/US326 : Malaysia + The Philippines + China
CB/US327 : Indonesia + The Philippines + China
CB/US328 : Singapore + The Philippines + China
CB/US329 : Korea + The Philippines + China
CB/US330 : Indonesia + Malaysia + China
CB/US331 : Singapore + Malaysia + China
CB/US332 : Korea + Malaysia + China
CB/US333 : Singapore + Indonesia + China
CB/US334 : Korea + Indonesia + China
CB/US335 : Korea + Singapore + China

CB/US401 : Korea + Singapore + Indonesia + Malaysia
CB/US402 : Korea + Singapore + Indonesia + The Philippines
CB/US403 : Korea + Singapore + Malaysia + The Philippines
CB/US404 : Korea + Indonesia + Malaysia + The Philippines
CB/US405 : Singapore + Indonesia + Malaysia + The Philippines
CB/US406 : Korea + Singapore + Indonesia + Thailand
CB/US407 : Korea + Singapore + Malaysia + Thailand
CB/US408 : Korea + Indonesia + Malaysia + Thailand
CB/US409 : Singapore + Indonesia + Malaysia + Thailand
CB/US410 : Korea + Singapore + The Philippines + Thailand
CB/US411 : Korea + Indonesia + The Philippines + Thailand
CB/US412 : Singapore + Indonesia + The Philippines + Thailand
CB/US413 : Korea + Malaysia + The Philippines + Thailand
CB/US414 : Singapore + Malaysia + The Philippines + Thailand
CB/US415 : Indonesia + Malaysia + The Philippines + Thailand
CB/US416 : Korea + Singapore + Indonesia + China
CB/US417 : Korea + Singapore + Malaysia + China
CB/US418 : Korea + Indonesia + Malaysia + China
CB/US419 : Singapore + Indonesia + Malaysia + China
CB/US420 : Korea + Singapore + The Philippines + China
CB/US421 : Korea + Indonesia + The Philippines + China
CB/US422 : Singapore + Indonesia + The Philippines + China
CB/US423 : Korea + Malaysia + The Philippines + China
CB/US424 : Singapore + Malaysia + The Philippines + China
CB/US425 : Indonesia + Malaysia + The Philippines + China
CB/US426 : Korea + Singapore + Thailand + China
CB/US427 : Korea + Indonesia + Thailand + China
CB/US428 : Singapore + Indonesia + Thailand + China
CB/US429 : Korea + Malaysia + Thailand + China
CB/US430 : Singapore + Malaysia + Thailand + China
CB/US431 : Indonesia + Malaysia + Thailand + China
CB/US432 : Korea + The Philippines + Thailand + China
CB/US433 : Singapore + The Philippines + Thailand + China
CB/US434 : Indonesia + The Philippines + Thailand + China
CB/US435 : Malaysia + The Philippines + Thailand + China

CB/US501 : Korea + Singapore + Indonesia + Malaysia + The Philippines
CB/US502 : Korea + Singapore + Indonesia + Malaysia + Thailand
CB/US503 : Korea + Singapore + Indonesia + The Philippines + Thailand
CB/US504 : Korea + Singapore + Malaysia + The Philippines + Thailand
CB/US505 : Korea + Indonesia + Malaysia + The Philippines + Thailand
CB/US506 : Singapore + Indonesia + Malaysia + The Philippines + Thailand
CB/US507 : Korea + Singapore + Indonesia + Malaysia + China
CB/US508 : Korea + Singapore + Indonesia + The Philippines + China
CB/US509 : Korea + Singapore + Malaysia + The Philippines + China
CB/US510 : Korea + Indonesia + Malaysia + The Philippines + China
CB/US511 : Singapore + Indonesia + Malaysia + The Philippines + China
CB/US512 : Korea + Singapore + Indonesia + Thailand + China
CB/US513 : Korea + Singapore + Malaysia + Thailand + China
CB/US514 : Korea + Indonesia + Malaysia + Thailand + China
CB/US515 : Singapore + Indonesia + Malaysia + Thailand + China
CB/US516 : Korea + Singapore + The Philippines + Thailand + China
CB/US517 : Korea + Indonesia + The Philippines + Thailand + China
CB/US518 : Singapore + Indonesia + The Philippines + Thailand + China
CB/US519 : Korea + Malaysia + The Philippines + Thailand + China
CB/US520 : Singapore + Malaysia + The Philippines + Thailand + China
CB/US521 : Indonesia + Malaysia + The Philippines + Thailand + China :
CB/US601 : Korea + Singapore + Indonesia + Malaysia + The Philippines + Thailand +
CB/US602 : Korea + Singapore + Indonesia + Malaysia + The Philippines + China
CB/US603 : Korea + Singapore + Indonesia + Malaysia + Thailand + China
CB/US604 : Korea + Singapore + Indonesia + The Philippines + Thailand + China
CB/US605 : Korea + Singapore + Malaysia + The Philippines + Thailand + China
CB/US606 : Korea + Indonesia + Malaysia + The Philippines + Thailand + China
CB/US607 : Singapore + Indonesia + Malaysia + The Philippines + Thailand + China
CB/US701 : Korea + Singapore + Indonesia + Malaysia + The Philippines + Thailand + China

† 2 Since we set that DGF are equalized from lags 2 to lags12, the starting point of the sample period for all estimations are valid.

CB/US301- 335; DGF=105, Lags2=1988:04, Lags3=1988:01, Lags4=1987:10, Lags5=1987:07, Lags6=1987:04, Lags7=1987:01, Lags8=1986:10, Lags9=1986:07, Lags10=1986:04, Lags11=1986:01, Lags 12=1985:10.
CB/US401- 435; DGF=93, Lags2=1989:02, Lags3=1988:10, Lags4=1988:06, Lags5=1988:02, Lags6=1987:10, Lags7=1987:06, Lags8=1987:02, Lags9=1986:10, Lags10=1986:06, Lags11=1986:02, Lags 12=1985:10.
CB/US501- 521; DGF=81, Lags2=1989:12, Lags3=1989:07, Lags4=1989:02, Lags5=1988:09, Lags6=1988:04, Lags7=1987:11, Lags8=1987:06, Lags9=1987:01, Lags10=1986:08, Lags11=1986:03, Lags 12=1985:10.
CB/US601- 607; DGF=69, Lags2=1991:10, Lags3=1990:04, Lags4=1989:10, Lags5=1989:04, Lags6=1988:10, Lags7=1988:04, Lags8=1987:10, Lags9=1987:04, Lags10=1986:10, Lags11=1986:04, Lags 12=1985:10.
CB/US701; DGF=57, Lags2=1991:08, Lags3=1991:01, Lags4=1990:06, Lags5=1989:11, Lags6=1989:04, Lags7=1988:09, Lags8=1988:02, Lags9=1987:07, Lags10=1986:12, Lags11=1986:05, Lags 12=1985:10.

Table 3: Chi-square based Tests

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
CB301	2	1	1	2.71	3.84	5.02	6.63	8.04 ***	11.78 ****	1.58				
		1	2	4.61	5.99	7.38	9.21	11.78 ***	8.25 ***	14.3 ****				
		1	1	2.71	3.84	5.02	6.63	5.68 ***	0.43	0.27				
CB302	2	1	1	2.71	3.84	5.02	6.63	7.41 ****	10.23 ****		2.25			
		1	2	4.61	5.99	7.38	9.21	10.68 ****	8.91 ***		15.71 ***			
		1	1	2.71	3.84	5.02	6.63	7.53 ****	0.92		0.07			
CB303	6	1	1	2.71	3.84	5.02	6.63	15.55 ****		17.3 ****	15.08 ****			
		1	2	4.61	5.99	7.38	9.21	18.47 ****		20.83 ****	20.94 ****			
		1	1	2.71	3.84	5.02	6.63	0.29		7.83 ****	2.04			
CB304	2	1	1	2.71	3.84	5.02	6.63		3.32 *	11.21 ****	11.63 ****			
		1	2	4.61	5.99	7.38	9.21		13.44 ****	11.89 ****	15.08 ****			
		1	1	2.71	3.84	5.02	6.63		0.33	4.86 **	0			
CB305	2	1	1	2.71	3.84	5.02	6.63	6 ***	9.85 ****			2.5		
		1	2	4.61	5.99	7.38	9.21	11.61 ****	8.94 ***			17.98 ****		
		1	1	2.71	3.84	5.02	6.63	7.87 ****	1.5			0.04		
CB307	11	1	1	2.71	3.84	5.02	6.63		4.63 **	17.36 ****		5.19 ***		
		1	2	4.61	5.99	7.38	9.21		18.86 ****	5.59 *		17.77 ****		
		1	1	2.71	3.84	5.02	6.63		14.58 ****	8.63 ****		2.25		
CB308	3	1	1	2.71	3.84	5.02	6.63	16.01 ****			15.02 ****	18.32 ****		
		1	2	4.61	5.99	7.38	9.21	18.94 ****			30.01 ****	28.31 ****		
		1	1	2.71	3.84	5.02	6.63	10.12 ****			0.19	4.29 **		
CB310	4	1	1	2.71	3.84	5.02	6.63			8.7 ****	16.47 ***	11.67 ****		
		1	2	4.61	5.99	7.38	9.21			16.53 ****	15.11 ***	20.66 ****		
		1	1	2.71	3.84	5.02	6.63			0.17	4.14 **	0.34		
CB311	9	2	2	4.61	5.99	7.38	9.21	15.4 ****	15.01 ***				5.76 *	
		2	1	2.71	3.84	5.02	6.63	4.92 **	4.36 **				6.53 ***	
		2	2	4.61	5.99	7.38	9.21	6.69 **	9.03 ***				3.66	
CB312	3	1	1	2.71	3.84	5.02	6.63	10.81 ***		16.96 ****			13.47 ****	
		1	2	4.61	5.99	7.38	9.21	17.45 ***		27.52 ****			24.55 ****	
		1	1	2.71	3.84	5.02	6.63	5.51 ***		0.08			0.07	
CB313	4	1	1	2.71	3.84	5.02	6.63		8.7 ***	12.21 ****			8.82 ***	
		1	2	4.61	5.99	7.38	9.21		18.43 ***	8.91 ***			15.25 ***	
		1	1	2.71	3.84	5.02	6.63		6.17 ***	9.46 ****			3.44 *	

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 1)

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
CB314	3	1	1	2.71	3.84	5.02	6.63	0.58			6.91 ****		7.48 ****	
		1	2	4.61	5.99	7.38	9.21	7.85 ***			18.56 ****		14.12 ****	
		1	1	2.71	3.84	5.02	6.63	6.89 ****			0.11		2.05	
CB315	11	1	1	2.71	3.84	5.02	6.63		12.48 ****		31.48 ****		7.9 ****	
		1	2	4.61	5.99	7.38	9.21		39.22 ****		12.54 ****		31.67 ****	
		1	1	2.71	3.84	5.02	6.63		28.05 ****		15.12 ****		5.87 ***	
CB316	7	1	1	2.71	3.84	5.02	6.63			7.22 ****	6.76 ****		0.55	
		1	2	4.61	5.99	7.38	9.21			11.63 ****	13.61 ****		15.17 ****	
		1	1	2.71	3.84	5.02	6.63			6.84 ****	0.97		4.77 **	
CB320	12	1	1	2.71	3.84	5.02	6.63				1.44	2.87 *	1	
		1	2	4.61	5.99	7.38	9.21				2.92	8.57 ***	3.51	
		1	1	2.71	3.84	5.02	6.63				5.39 ***	2.71	6.16 ***	
CB322	4	1	1	2.71	3.84	5.02	6.63				3.31 *		5.04 ***	1.9
		1	2	4.61	5.99	7.38	9.21				8.88 ***		10.39 ****	5.36 *
		1	1	2.71	3.84	5.02	6.63				7.28 ****		1.61	0.11
CB324	11	1	1	2.71	3.84	5.02	6.63		10.79 ****				3.2 *	9.41 ****
		1	2	4.61	5.99	7.38	9.21		19.13 ****				10.91 ****	29.23 ****
		1	1	2.71	3.84	5.02	6.63		22.01 ****				6.87 ****	4.04 **
CB325	10	1	1	2.71	3.84	5.02	6.63	13.41 ****					8.76 ****	9.75 ****
		1	2	4.61	5.99	7.38	9.21	13.33 ****					14.06 ****	15.02 ****
		1	1	2.71	3.84	5.02	6.63	3.08 *					0.02	0.01
CB326	12	2	2	4.61	5.99	7.38	9.21				15.49 ****	17.58 ****		11.38 ****
		2	1	2.71	3.84	5.02	6.63				2.78 *	10.03 ****		8.88 ****
		2	2	4.61	5.99	7.38	9.21				21.05 ****	20.78 ****		4.08
CB327	12	1	1	2.71	3.84	5.02	6.63			1.93		4.05 **		4.82 **
		1	2	4.61	5.99	7.38	9.21			4.9 *		11.84 ****		13.07 ****
		1	1	2.71	3.84	5.02	6.63			0.72		8.19 ****		1.22
CB328	12	1	1	2.71	3.84	5.02	6.63		4.08 **			0.05		11.45 ****
		1	2	4.61	5.99	7.38	9.21		17.21 ****			12 ****		19.08 ****
		1	1	2.71	3.84	5.02	6.63		17.27 ****			8.09 ****		5.17 ***
CB329	3	1	1	2.71	3.84	5.02	6.63	19.75 ****				0.01		8.64 ****
		1	2	4.61	5.99	7.38	9.21	13.04 ****				19.8 ****		22.23 ****
		1	1	2.71	3.84	5.02	6.63	16.26 ****				1.02		0.12

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 2)

Combination	k	r	DGF	CHISQ 5%	3%	1.0%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
CB330	4	1	1	2.71	3.84	5.02	6.63			11.11 ****	14.38 ****			8.82 ****
		1	2	4.61	5.99	7.38	9.21			14.82 ****	12.13 ****			18.06 ****
		1	1	2.71	3.84	5.02	6.63			0.41	2.83 *			1.42
CB331	3	1	1	2.71	3.84	5.02	6.63		5.57 ***		5.38 ***			3.2 *
		1	2	4.61	5.99	7.38	9.21		6.51 **		6.17 **			8.47 ***
		1	1	2.71	3.84	5.02	6.63		0.66		0.31			2.82 *
CB332	3	1	1	2.71	3.84	5.02	6.63	21.7 ****			0.51			11.93 ****
		1	2	4.61	5.99	7.38	9.21	12.56 ****			22.24 ****			24.14 ****
		1	1	2.71	3.84	5.02	6.63	12.26 ****			0.17			3.16 *
CB335	9	2	2	4.61	5.99	7.38	9.21	18.5 ****	12.21 ****					13.71 ****
		2	1	2.71	3.84	5.02	6.63	7.9 ****	11.31 ****					11.58 ****
		2	2	4.61	5.99	7.38	9.21	13.53 ****	14.11 ****					6.78 **
CB401	6	2	2	4.61	5.99	7.38	9.21	14.19 ****	9.37 ****	24.92 ****	21.81 ****			
		2	2	4.61	5.99	7.38	9.21	11.34 ****	12.65 ****	23.06 ****	20.75 ****			
		2	2	4.61	5.99	7.38	9.21	1.83	5.72 *	11.68 ****	6.75 **			
CB402	3	1	1	2.71	3.84	5.02	6.63	10.44 ****	5.04 ***	8.01 ****		0.94		
		1	3	6.25	7.81	9.35	11.34	14.94 ****	12.52 ****	14.92 ****		18.68 ****		
		1	1	2.71	3.84	5.02	6.63	0.17	0.74	2.64		1.19		
CB404	12	2	2	4.61	5.99	7.38	9.21	18.15 ****		22.46 ****	15.58 ****	14.94 ****		
		2	2	4.61	5.99	7.38	9.21	11.33 ****		8.02 ***	7.57 ***	17.46 ****		
		2	2	4.61	5.99	7.38	9.21	6.76 **		12.7 ****	14.87 ****	5.26 *		
CB405	3	1	1	2.71	3.84	5.02	6.63		0.01	8.4 ****	10.6 ****	6.16 ***		
		1	3	6.25	7.81	9.35	11.34		15.53 ****	13.83 ****	17.8 ****	18.32 ****		
		1	1	2.71	3.84	5.02	6.63		0.25	0.49	1.72	1.35		
CB406	4	2	2	4.61	5.99	7.38	9.21	12.15 ****	12.74 ****	15.92 ****			13.73 ****	
		2	2	4.61	5.99	7.38	9.21	11.45 ****	8.4 ***	13.89 ****			15.45 ****	
		2	2	4.61	5.99	7.38	9.21	11.99 ****	6.34 **	15.03 ****			5.32 *	
CB407	5	2	2	4.61	5.99	7.38	9.21	12.56 ****	14.32 ****		8.75 ***		10.66 ****	
		2	2	4.61	5.99	7.38	9.21	6.55 **	10.18 ****		9.65 ****		10.22 ****	
		2	2	4.61	5.99	7.38	9.21	10.56 ****	6.55 **		2.84		2.29	
CB408	6	1	1	2.71	3.84	5.02	6.63	5.51 ***		15.63 ****	4.64 **		4.81 **	
		1	3	6.25	7.81	9.35	11.34	19.5 ****		19.27 ****	23.33 ****		26.54 ****	
		1	1	2.71	3.84	5.02	6.63	0.11		6.94 ****	4.29 **		3.83 *	

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 3)

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
CB409	4	1	1	2.71	3.84	5.02	6.63		10.69 ****	20.43 ****	13.21 ****		7.8 ****	
		1	3	6.25	7.81	9.35	11.34		28.09 ****	23.1 ****	29.53 ****		29.31 ****	
		1	1	2.71	3.84	5.02	6.63		1.6	11.4 ****	0.26		4.16 **	
CB410	4	1	1	2.71	3.84	5.02	6.63	8.79 ****	11.92 ****			0	1.56	
		1	3	6.25	7.81	9.35	11.34	14.91 ****	10.47 ***			19.23 ****	16.53 ****	
		1	1	2.71	3.84	5.02	6.63	8.96 ****	2.26			0.54	1.16	
CB411	5	1	1	2.71	3.84	5.02	6.63	8.13 ****		19.49 ****		2.01	9.91 ****	
		1	3	6.25	7.81	9.35	11.34	24.04 ****		27.92 ****		29.67 ****	29.36 ****	
		1	1	2.71	3.84	5.02	6.63	0.81		3.62 *		1.57	1.73	
CB415	11	1	1	2.71	3.84	5.02	6.63			5.82 ***	0.86	2.19	3.47 *	
		1	3	6.25	7.81	9.35	11.34			11.13 ***	11.53 ****	18.55 ****	18.98 ****	
		1	1	2.71	3.84	5.02	6.63			5.26 ***	10.99 ****	3.77 *	5.27 ***	
CB416	10	3	3	6.25	7.81	9.35	11.34	15.61 ****	17.19 ****	16.04 ****				15.3 ****
		3	1	2.71	3.84	5.02	6.63	7.15 ****	15.18 ****	0				12.11 ****
		3	3	6.25	7.81	9.35	11.34	19.29 ****	15.4 ****	16.69 ****				8.47 **
CB417	5	1	1	2.71	3.84	5.02	6.63	5.59 ***	0.21		0.11			0.3
		1	3	6.25	7.81	9.35	11.34	12.05 ****	17.21 ****		21.71 ****			22.31 ****
		1	1	2.71	3.84	5.02	6.63	6.58 ***	0.13		0			0.52
CB418	11	1	1	2.71	3.84	5.02	6.63	11.28 ****		10.36 ****	8.41 ****			7.22 ****
		1	3	6.25	7.81	9.35	11.34	26.23 ****		13.84 ****	14.49 ****			19.81 ****
		1	1	2.71	3.84	5.02	6.63	4.36 **		12.42 ****	3.66 *			11.86 ****
CB419	4	1	1	2.71	3.84	5.02	6.63		1.83	19.08 ****	12.14 ****			5.62 ***
		1	3	6.25	7.81	9.35	11.34		24.7 ****	19.8 ****	25.87 ****			26.12 ****
		1	1	2.71	3.84	5.02	6.63		0.09	4.54 **	0.05			1.28
CB420	4	1	1	2.71	3.84	5.02	6.63	6.76 ****	0.96			0		0.46
		1	3	6.25	7.81	9.35	11.34	13.63 ****	11.84 ****			16.35 ****		19.61 ****
		1	1	2.71	3.84	5.02	6.63	10.38 ****	1.06			0.57		0
CB422	12	2	2	4.61	5.99	7.38	9.21		7.06 **	15.54 ****		18.7 ****		16.24 ****
		2	2	4.61	5.99	7.38	9.21		14.8 ****	5.19 *		15.19 ****		18.41 ****
		2	2	4.61	5.99	7.38	9.21		19.5 ****	4.08		14.14 ****		4.58
CB425	11	1	1	2.71	3.84	5.02	6.63			0.99	7.49 ****	6.61 ***		2.33
		1	3	6.25	7.81	9.35	11.34			11.67 ****	10.04 ***	22.1 ****		18.6 ****
		1	1	2.71	3.84	5.02	6.63			4.46 **	11.58 ****	0.71		0.72

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 4)

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
CB426	8	1	1	2.71	3.84	5.02	6.63	5.12 ***	14.04 ****				12.13 ****	13.31 ****
		1	3	6.25	7.81	9.35	11.34	26.51 ****	22.88 ****				36.46 ****	33.7 ****
		1	1	2.71	3.84	5.02	6.63	9.01 ****	11.9 ****				4.25 **	2.85 *
CB428	10	1	1	2.71	3.84	5.02	6.63		4.82 **	13.57 ****			5.41 ***	3.08 *
		1	3	6.25	7.81	9.35	11.34		28.57 ****	6.52 *			19.2 ****	24.46 ****
		1	1	2.71	3.84	5.02	6.63		16.51 ****	17.02 ****			13.07 ****	12.49 ****
CB431	11	2	2	4.61	5.99	7.38	9.21			13.52 ****	12.31 ****		5.82 *	3.5
		2	2	4.61	5.99	7.38	9.21			8.16 ***	8.58 ***		15.39 ****	12.33 ****
		2	2	4.61	5.99	7.38	9.21			16.62 ****	21.71 ****		11.54 ****	8.17 ***
CB434	12	1	1	2.71	3.84	5.02	6.63			14.33 ****		14.22 ****	0.06	11.49 ****
		1	3	6.25	7.81	9.35	11.34			16.19 ****		25.46 ****	19.07 ****	25.4 ****
		1	1	2.71	3.84	5.02	6.63			4.23 **		3.05 *	0.7	0.84
CB502	3	1	1	2.71	3.84	5.02	6.63	1.41	4.71 **	3.4 *	0.18		4.44 **	
		1	4	7.78	9.49	11.14	13.28	10.28 **	15.46 ****	9.52 **	11.95 ***		12.7 ***	
		1	1	2.71	3.84	5.02	6.63	4.69 **	4.16 **	4.28 **	2.85 *		3.3 *	
CB503	5	1	1	2.71	3.84	5.02	6.63	0.29	7.78 ****	16.75 ****		9.69 ****	14 ****	
		1	4	7.78	9.49	11.14	13.28	28.54 ****	25.51 ****	27.72 ****		34 ****	32.8 ****	
		1	1	2.71	3.84	5.02	6.63	3.83 *	4.67 **	15.86 ****		3.95 **	5.58 ***	
CB507	7	1	1	2.71	3.84	5.02	6.63	0.08	9.05 ****	29.26 ****	20.25 ****			12.86 ****
		1	4	7.78	9.49	11.14	13.28	35.27 ****	37.65 ****	40.38 ****	43.39 ****			42.05 ****
		1	1	2.71	3.84	5.02	6.63	1.76	0.22	10.26 ****	0.73			5.45 ***
CB512	6	1	1	2.71	3.84	5.02	6.63	3.44 *	6.64 ****	12.5 ****			10.53 ****	3.02 *
		1	4	7.78	9.49	11.14	13.28	22.82 ****	27.62 ****	25.11 ****			30.17 ****	31.6 ****
		1	1	2.71	3.84	5.02	6.63	8.07 ****	2.74 *	6.99 ****			0.74	3.7 *
CB517	2	1	1	2.71	3.84	5.02	6.63	0.01		11.35 ****		5.08 ***	16.26 ****	1.51
		1	4	6.25	7.81	9.35	11.34	22.43 ****		19.89 ****		25.28 ****	23.07 ****	24.95 ****
		1	1	6.25	7.81	9.35	11.34	7.91 **		8.78 **		18.45 ****	6.84 *	10.49 ***
CB602	3	1	1	2.71	3.84	5.02	6.63	1.36	2.19	0.01	10.85 ****	12.08 ****		9.31 ****
		1	5	9.24	11.1	12.83	16.81	26.53 ****	32.09 ****	28.13 ****	31.94 ****	29.74 ****		32.88 ****
		1	1	2.71	3.84	5.02	6.63	0.85	0.58	0	2.46	2.61		0.46
CB603	2	1	1	2.71	3.84	5.02	6.63	1.89	1.13	10.33 ****	1.33		10.23 ****	0.59
		1	5	9.24	11.1	12.83	16.81	29.03 ****	32.29 ****	27.36 ****	29.79 ****		30.95 ****	35.04 ****
		1	1	2.71	3.84	5.02	6.63	9 ****	10.2 ****	9.97 ****	5.42 ***		7.75 ****	6.33 ***

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 5)

Combination	k	r	DGF	CHISQ 5%	3%	1.0%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
CB604	2	1	1	2.71	3.84	5.02	6.63	3.49 *	0.23	20.44 ****		9.61 ****	14.02 ****	1.67
		1	5	9.24	11.1	12.83	16.81	30.87 ****	34.74 ****	30.08 ****		34.77 ****	33 ****	37.87 ****
		1	1	2.71	3.84	5.02	6.63	16.64 ****	12.41 ****	15.39 ****		20 ****	10.95 ****	9.19 ****
US301	3	1	1	2.71	3.84	5.02	6.63	5.14 ***	2.24	4.76 **				
		1	2	4.61	5.99	7.38	9.21	4.86 *	15.48 ****	18.69 ****				
		1	1	2.71	3.84	5.02	6.63	9.1 ****	0.43	3.53 *				
US303	5	1	1	2.71	3.84	5.02	6.63	3.3 *		13.2 ****	13.39 ****			
		1	2	4.61	5.99	7.38	9.21	13.65 ****		21.27 ****	18.38 ****			
		1	1	2.71	3.84	5.02	6.63	2.36		7.09 ****	4.82 **			
US306	3	1	1	2.71	3.84	5.02	6.63	6.32 ***		12.42 ****		10.75 ****		
		1	2	4.61	5.99	7.38	9.21	12.49 ****		26.62 ****		25.9 ****		
		1	1	2.71	3.84	5.02	6.63	13.47 ****		5.79 ***		0.39		
US308	4	1	1	2.71	3.84	5.02	6.63	2.54			13.18 ****	13.04 ****		
		1	2	4.61	5.99	7.38	9.21	13.2 ****			24.01 ****	25.31 ****		
		1	1	2.71	3.84	5.02	6.63	1.57			14.48 ****	2.79 *		
US310	11	1	1	2.71	3.84	5.02	6.63			13.27 ****	1.48	0.16		
		1	2	4.61	5.99	7.38	9.21			4.89 *	17.58 ****	22.12 ****		
		1	1	2.71	3.84	5.02	6.63			14.19 ****	1.03	0.29		
US311	11	1	1	2.71	3.84	5.02	6.63	20.48 ****	2.83 *				1.17	
		1	2	4.61	5.99	7.38	9.21	7.22 **	25.69 ****				27.66 ****	
		1	1	2.71	3.84	5.02	6.63	14.19 ****	0.05				5.3 ***	
US312	3	1	1	2.71	3.84	5.02	6.63	5.6 ***		7 ****			5.23 ***	
		1	2	4.61	5.99	7.38	9.21	7.01 **		23.31 ****			21.98 ****	
		1	1	2.71	3.84	5.02	6.63	13.07 ****		4.46 **			0.04	
US313	5	1	1	2.71	3.84	5.02	6.63		18.11 ****	14.22 ****			17.53 ****	
		1	2	4.61	5.99	7.38	9.21		17.56 ****	18.55 ****			18.11 ****	
		1	1	2.71	3.84	5.02	6.63		1.23	1.15			15.1 ****	
US314	7	2	2	4.61	5.99	7.38	9.21	9.95 ****			10.83 ****		9.6 ****	
		2	1	2.71	3.84	5.02	6.63	0			9.55 ****		9.09 ****	
		2	2	4.61	5.99	7.38	9.21	11.03 ****			11.34 ****		1.72	
US316	5	2	2	4.61	5.99	7.38	9.21			17.95 ****	19.47 ****		8.37 ***	
		2	1	2.71	3.84	5.02	6.63			7.67 ****	6.87 ****		6.58 ***	
		2	2	4.61	5.99	7.38	9.21			9.4 ****	11.03 ****		4.08	

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 6)

Combination	k	r	DGF	CHISQ 5%	3%	1.0%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
US317	9	1	1	2.71	3.84	5.02	6.63	4.42 **				8.44 ****	8.24 ****	
		1	2	4.61	5.99	7.38	9.21	8.49 ***				15.91 ****	15 ****	
		1	1	2.71	3.84	5.02	6.63	1.08				7.95 ****	1.06	
US321	7	2	2	4.61	5.99	7.38	9.21					14.9 ****	18.4 ****	16.52 ****
		2	1	2.71	3.84	5.02	6.63					9.82 ****	9.44 ****	7.82 ****
		2	2	4.61	5.99	7.38	9.21					14.23 ****	14.5 ****	0.02
US322	6	2	2	4.61	5.99	7.38	9.21				10.74 ****		15.75 ****	18.65 ****
		2	1	2.71	3.84	5.02	6.63				10.19 ****		10.35 ****	9.53 ****
		2	2	4.61	5.99	7.38	9.21				12.59 ****		18.79 ****	0.79
US323	3	1	1	2.71	3.84	5.02	6.63			3.14 *			12.71 ****	15.9 ****
		1	2	4.61	5.99	7.38	9.21			21.1 ****			21.86 ****	18.17 ****
		1	1	2.71	3.84	5.02	6.63			4.4 **			14.02 ****	1.02
US324	5	1	1	2.71	3.84	5.02	6.63		8.32 ****				4.27 **	22.55 ****
		1	2	4.61	5.99	7.38	9.21		25.97 ****				25.81 ****	27.25 ****
		1	1	2.71	3.84	5.02	6.63		24.09 ****				11.42 ****	0.61
US325	4	1	1	2.71	3.84	5.02	6.63	4.96 **					6.11 ***	6.08 ***
		1	2	4.61	5.99	7.38	9.21	6.17 **					15.89 ****	15.43 ****
		1	1	2.71	3.84	5.02	6.63	4.03 **					6.38 ***	0.09
US326	12	1	1	2.71	3.84	5.02	6.63				7.45 ****	18.43 ****		25.53 ****
		1	2	4.61	5.99	7.38	9.21				27.4 ****	30.48 ****		22.08 ****
		1	1	2.71	3.84	5.02	6.63				5.32 ***	20.01 ****		0.62
US328	2	1	1	2.71	3.84	5.02	6.63		6.55 ***			0.12		8.53 ****
		1	2	4.61	5.99	7.38	9.21		13.18 ****			13.98 ****		12.97 ****
		1	1	2.71	3.84	5.02	6.63		8.23 ****			0.31		1.23
US330	4	2	2	4.61	5.99	7.38	9.21			16.17 ****	18.7 ****			10.2 ****
		2	1	2.71	3.84	5.02	6.63			9.8 ****	10.14 ****			8.83 ****
		2	2	4.61	5.99	7.38	9.21			12.98 ****	14 ****			1.32
US331	7	1	1	2.71	3.84	5.02	6.63		15.04 ****		2.11			15.85 ****
		1	2	4.61	5.99	7.38	9.21		18.12 ****		17.44 ****			19.3 ****
		1	1	2.71	3.84	5.02	6.63		14.93 ****		1.32			1.02
US333	6	1	1	2.71	3.84	5.02	6.63		19.56 ****	4.03 **				21.13 ****
		1	2	4.61	5.99	7.38	9.21		24.23 ****	21.74 ****				24.9 ****
		1	1	2.71	3.84	5.02	6.63		17.86 ****	8.68 ****				1

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 7)

Combination	k	r	DGF	CHISQ 5%	3%	1.0%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
US334	3	1	1	2.71	3.84	5.02	6.63	4.18 **		4.65 **				3.06 *
		1	2	4.61	5.99	7.38	9.21	4.68 *		17.92 ****				13.51 ****
		1	1	2.71	3.84	5.02	6.63	7.28 ****		3.4 *				0.25
US335	5	1	1	2.71	3.84	5.02	6.63	0	17.02 ****					16.91 ****
		1	2	4.61	5.99	7.38	9.21	17.02 ****	21.39 ****					22.78 ****
		1	1	2.71	3.84	5.02	6.63	1.18	17.39 ****					1.02
US401	5	2	2	4.61	5.99	7.38	9.21	0.59	6.83 **	11.32 ****	7.5 ***			
		2	2	4.61	5.99	7.38	9.21	8.02 ***	14.9 ****	15.42 ****	11.56 ****			
		2	2	4.61	5.99	7.38	9.21	2.83	5.3 *	11.18 ****	8.04 ***			
US403	3	1	1	2.71	3.84	5.02	6.63	0.37	3.72 *		24.63 ****	20.31 ****		
		1	3	6.25	7.81	9.35	11.34	25.16 ****	27.36 ****		28.69 ****	28.38 ****		
		1	1	2.71	3.84	5.02	6.63	2.14	2.66		19.03 ****	2.82 *		
US404	4	1	1	2.71	3.84	5.02	6.63	0.37		0.08	7.33 ****	8.61 ****		
		1	3	6.25	7.81	9.35	11.34	21.08 ****		26.43 ****	25.39 ****	26.76 ****		
		1	1	2.71	3.84	5.02	6.63	1.01		1.42	7.13 ****	2.63		
US406	6	2	2	4.61	5.99	7.38	9.21	7.18 **	7.64 ***	10.28 ****			8.08 ***	
		2	2	4.61	5.99	7.38	9.21	9.34 ****	13.38 ****	17.79 ****			16.65 ****	
		2	2	4.61	5.99	7.38	9.21	6.06 **	2.46	10.23 ****			5.66 *	
US409	4	2	2	4.61	5.99	7.38	9.21		18.1 ****	15.29 ****	9.83 ****		13.55 ****	
		2	2	4.61	5.99	7.38	9.21		10.91 ****	18.37 ****	13.22 ****		14.41 ****	
		2	2	4.61	5.99	7.38	9.21		8.21 ***	9.42 ****	13.35 ****		14.61 ****	
US411	5	1	1	2.71	3.84	5.02	6.63	1.72		14.83 ****		2.57	4.52 **	
		1	3	6.25	7.81	9.35	11.34	14.91 ****		27.41 ****		27.74 ****	24.91 ****	
		1	1	2.71	3.84	5.02	6.63	7.9 ****		11.31 ****		0.53	0.31	
US413	4	1	1	2.71	3.84	5.02	6.63	2.62			23.79 ****	18.04 ****	2.93 *	
		1	3	6.25	7.81	9.35	11.34	24.41 ****			29.98 ****	31.16 ****	30.13 ****	
		1	1	2.71	3.84	5.02	6.63	0.61			23.02 ****	1.03	4.77 **	
US416	5	2	2	4.61	5.99	7.38	9.21	2.12	15.13 ****	7.33 **				14.82 ****
		2	2	4.61	5.99	7.38	9.21	7.18 **	12.65 ****	18.19 ****				14.01 ****
		2	2	4.61	5.99	7.38	9.21	5.51 *	15.24 ****	7.06 **				0.94
US417	5	1	1	2.71	3.84	5.02	6.63	0	9.77 ****		0.37			9.99 ****
		1	3	6.25	7.81	9.35	11.34	13.31 ****	20.72 ****		20.23 ****			22.25 ****
		1	1	2.71	3.84	5.02	6.63	2.13	7.93 ****		0			1.03

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 8)

Combination	k	r	DGF	CHISQ 5%	3%	1.0%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
US418	8	1	1	2.71	3.84	5.02	6.63	0.12		16.43 ****	11.91 ****			4.22 **
		1	3	6.25	7.81	9.35	11.34	17.24 ****		29.57 ****	25.1 ****			26.16 ****
		1	1	2.71	3.84	5.02	6.63	0.14		11.77 ****	3.48 *			3.24 *
US419	5	3	3	6.25	7.81	9.35	11.34		24.39 ****	19.41 ****	17.13 ****			25.68 ****
		3	1	2.71	3.84	5.02	6.63		9.94 ****	14.22 ****	10.32 ****			11.43 ****
		3	3	6.25	7.81	9.35	11.34		21.77 ****	23.49 ****	10.79 ***			3.87
US420	4	1	1	2.71	3.84	5.02	6.63	0.05	15.66 ****			0.03		16.26 ****
		1	3	6.25	7.81	9.35	11.34	16.66 ****	19.83 ****			20.44 ****		19.32 ****
		1	1	2.71	3.84	5.02	6.63	1.7	15.97 ****			0.17		2.08
US421	7	2	2	4.61	5.99	7.38	9.21	7.86 ***		14.01 ****		11.26 ****		9.41 ****
		2	2	4.61	5.99	7.38	9.21	8.66 ***		16.43 ****		16.21 ****		12.58 ****
		2	2	4.61	5.99	7.38	9.21	5.98 *		12.79 ****		6.25 **		2.05
US423	3	1	1	2.71	3.84	5.02	6.63	0.01			18.43 ****	17.22 ****		0.63
		1	3	6.25	7.81	9.35	11.34	19.87 ****			25.47 ****	24.04 ****		24.23 ****
		1	1	2.71	3.84	5.02	6.63	2.23			13.22 ****	3.5 *		0.04
US425	3	1	1	2.71	3.84	5.02	6.63			0.46	9.68 ****	8.75 ****		2.41
		1	3	6.25	7.81	9.35	11.34			20.3 ****	19.62 ****	19.65 ****		17.27 ****
		1	1	2.71	3.84	5.02	6.63			2.82 *	9.28 ****	0.89		0.14
US426	9	2	2	4.61	5.99	7.38	9.21	7.03 **	10.59 ****				6.39 **	17.26 ****
		2	2	4.61	5.99	7.38	9.21	5.26 *	9.52 ****				12.57 ****	10.25 ****
		2	2	4.61	5.99	7.38	9.21	1.14	17.58 ****				7.44 ***	0.57
US427	6	2	2	4.61	5.99	7.38	9.21	7.71 ***		7.76 ***			8.34 ***	10.8 ****
		2	2	4.61	5.99	7.38	9.21	7.99 ***		16.98 ****			15.02 ****	12.49 ****
		2	2	4.61	5.99	7.38	9.21	6.64 **		12.41 ****			6.4 **	1.18
US428	5	1	1	2.71	3.84	5.02	6.63		0.05	3.65 *			7.32 ****	9.56 ****
		1	3	6.25	7.81	9.35	11.34		25.4 ****	28.59 ****			27.73 ****	26.69 ****
		1	1	2.71	3.84	5.02	6.63		9.32 ****	6.09 ***			12.98 ****	0.68
US429	4	1	1	2.71	3.84	5.02	6.63	1.51			3.86 **		11.37 ****	13.81 ****
		1	3	6.25	7.81	9.35	11.34	19.24 ****			23.24 ****		25.44 ****	24.33 ****
		1	1	2.71	3.84	5.02	6.63	3.1 *			1.59		13.5 ****	1.01
US430	5	1	1	2.71	3.84	5.02	6.63		5.18 ***		1.78		6.59 ***	19.76 ****
		1	3	6.25	7.81	9.35	11.34		26.89 ****		25.49 ****		27.43 ****	28.43 ****
		1	1	2.71	3.84	5.02	6.63		18.16 ****		0.26		13.56 ****	0.28

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 9)

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
US431	7	3	3	6.25	7.81	9.35	11.34			18.93 ****	31.31 ****		20.55 ****	23.9 ****
		3	1	2.71	3.84	5.02	6.63			8.97 ****	8.02 ****		8.35 ****	7.6 ****
		3	3	6.25	7.81	9.35	11.34			29.89 ****	12.92 ****		15.07 ****	5.42
US432	4	1	1	2.71	3.84	5.02	6.63	0.79				5.66 ***	16.29 ****	16.76 ****
		1	3	6.25	7.81	9.35	11.34	17.4 ****				22.72 ****	22.26 ****	19.91 ****
		1	1	2.71	3.84	5.02	6.63	0.38				0.44	17.62 ****	1.92
US433	3	1	1	2.71	3.84	5.02	6.63		3.63 *			0.51	0.49	9.22 ****
		1	3	6.25	7.81	9.35	11.34		15.22 ****			16.82 ****	16.23 ****	16.38 ****
		1	1	2.71	3.84	5.02	6.63		9.31 ****			0	4.55 **	1.2
US434	12	2	2	4.61	5.99	7.38	9.21			7.86 ***		21.47 ****	18.61 ****	10.96 ****
		2	2	4.61	5.99	7.38	9.21			5.95 *		20 ****	19.99 ****	18.12 ****
		2	2	4.61	5.99	7.38	9.21			2.6		23.46 ****	7.48 ***	2.38
US501	3	1	1	2.71	3.84	5.02	6.63	0.39	2.16	0.73	15.11 ****	15.16 ****		
		1	4	7.78	9.49	11.14	13.28	26.03 ****	23.96 ****	27.91 ****	25.22 ****	25.49 ****		
		1	1	2.71	3.84	5.02	6.63	0.7	1.96	4.24 **	12.39 ****	1.64		
US503	2	1	1	2.71	3.84	5.02	6.63	0.55	3.42 *	2.39		4.37 **	0	
		1	4	7.78	9.49	11.14	13.28	29.03 ****	22.77 ****	27.79 ****		26.82 ****	24.83 ****	
		1	1	2.71	3.84	5.02	6.63	0.74	6.6 ***	0.54		6.93 ****	0.8	
US505	3	1	1	2.71	3.84	5.02	6.63	0.52		4.13 **	15.74 ****	15.12 ****	4.83 **	
		1	4	7.78	9.49	11.14	13.28	29.11 ****		32.27 ****	31.91 ****	31.6 ****	30.95 ****	
		1	1	2.71	3.84	5.02	6.63	2.45		4.25 **	8.32 ****	0.8	1.18	
US507	7	2	2	4.61	5.99	7.38	9.21	4.48	15.24 ****	24.61 ****	20.96 ****			17.22 ****
		2	3	6.25	7.81	9.35	11.34	15.67 ****	24.59 ****	29.6 ****	22.72 ****			27.95 ****
		2	2	4.61	5.99	7.38	9.21	1	12.93 ****	22.51 ****	4.09			7.73 ***
US508	2	1	1	2.71	3.84	5.02	6.63	0.02	5.25 ***	14.34 ****		3.88 **		8.14 ****
		1	4	7.78	9.49	11.14	13.28	40.31 ****	34.16 ****	40.18 ****		38.77 ****		34.58 ****
		1	1	2.71	3.84	5.02	6.63	3.29 *	3.28 *	2.88 *		13.34 ****		10.93 ****
US509	3	2	2	4.61	5.99	7.38	9.21	1.44	11.57 ****		19.87 ****	21.35 ****		13.61 ****
		2	3	6.25	7.81	9.35	11.34	13.61 ****	12.08 ****		12.85 ****	14.29 ****		12.75 ****
		2	2	4.61	5.99	7.38	9.21	3.16	7.87 ***		12.91 ****	5.06 *		2.24
US510	4	1	1	2.71	3.84	5.02	6.63	0.83		1.83	17.67 ****	20.03 ****		6.95 ****
		1	4	7.78	9.49	11.14	13.28	32.29 ****		37.38 ****	35.14 ****	36.13 ****		34.41 ****
		1	1	2.71	3.84	5.02	6.63	0.05		5.75 ***	15.88 ****	0.66		1.19

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 10)

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
US511	3	3	3	6.25	7.81	9.35	11.34		10.17 ***	6.28 *	14.62 ****	11.23 ***		10.37 ***
		3	2	4.61	5.99	7.38	9.21		8.31 ***	13.1 ****	9.65 ****	11.07 ****		9.28 ****
		3	3	6.25	7.81	9.35	11.34		9.04 **	8.63 **	13.04 ****	1.69		6.64 *
US512	6	3	3	6.25	7.81	9.35	11.34	0.53	14.46 ****	15.45 ****			18.16 ****	20.84 ****
		3	2	4.61	5.99	7.38	9.21	13.93 ****	15.26 ****	15.86 ****			17.4 ****	17.55 ****
		3	3	6.25	7.81	9.35	11.34	4.03	22.98 ****	23.66 ****			18.8 ****	1.91
US513	5	1	1	2.71	3.84	5.02	6.63	0.43	8.62 ****		8.13 ****		10.19 ****	27.79 ****
		1	4	7.78	9.49	11.14	13.28	29.62 ****	32.24 ****		33.89 ****		32.82 ****	34.84 ****
		1	1	2.71	3.84	5.02	6.63	4.52 **	21.85 ****		0.07		11.92 ****	0.7
US514	5	2	2	4.61	5.99	7.38	9.21	2		16.55 ****	7.01 **		25.72 ****	31.19 ****
		2	3	6.25	7.81	9.35	11.34	19.99 ****		25.93 ****	24.56 ****		24.19 ****	22.96 ****
		2	2	4.61	5.99	7.38	9.21	10.76 ****		24.34 ****	0.63		19.25 ****	0.76
US515	5	2	2	4.61	5.99	7.38	9.21		4.28	1.2	0.75		11.81 ****	11.34 ****
		2	3	6.25	7.81	9.35	11.34		17.13 ****	26.52 ****	24.34 ****		21.94 ****	21.1 ****
		2	2	4.61	5.99	7.38	9.21		13.03 ****	10.86 ****	1.9		10.96 ****	0.65
US516	4	1	1	2.71	3.84	5.02	6.63	2.14	0.38			5.18 ***	15.35 ****	26.11 ****
		1	4	7.78	9.49	11.14	13.28	35.2 ****	35.51 ****			36.36 ****	35.34 ****	35.88 ****
		1	1	2.71	3.84	5.02	6.63	4.9 **	23.04 ****			0.08	19.09 ****	3.17 *
US517	2	1	1	2.71	3.84	5.02	6.63	0.07		11.46 ****		3.02 *	1.25	10.76 ****
		1	4	7.78	9.49	11.14	13.28	36.94 ****		37.2 ****		36.82 ****	34.52 ****	31.26 ****
		1	1	2.71	3.84	5.02	6.63	2.16		3.76 *		12.5 ****	0.23	11.6 ****
US518	2	2	2	4.61	5.99	7.38	9.21		2.49	15.58 ****		3.19	6.83 **	7.82 ***
		2	3	6.25	7.81	9.35	11.34		15.54 ****	16.75 ****		16.34 ****	16.15 ****	16.81 ****
		2	2	4.61	5.99	7.38	9.21		5.89 *	5.74 *		13.27 ****	8.58 ***	10.96 ****
US519	3	2	2	4.61	5.99	7.38	9.21	5.42 *			23.45 ****	17.9 ****	19.97 ****	20.26 ****
		2	3	6.25	7.81	9.35	11.34	14.7 ****			16.69 ****	16.4 ****	15.61 ****	14.42 ****
		2	2	4.61	5.99	7.38	9.21	12.18 ****			10.85 ****	3.02	11.92 ****	3.19
US521	4	2	2	4.61	5.99	7.38	9.21			0.22	12.1 ****	12.4 ****	9.86 ****	15.63 ****
		2	3	6.25	7.81	9.35	11.34			18.09 ****	16.77 ****	17.59 ****	17.05 ****	16.01 ****
		2	2	4.61	5.99	7.38	9.21			11.46 ****	17.96 ****	1.24	8.23 ***	2.31
US602	3	2	2	4.61	5.99	7.38	9.21	7.53 ***	6.94 **	4.29	15.57 ****	17.21 ****		12.19 ****
		2	4	7.78	9.49	11.14	13.28	24.16 ****	24.39 ****	27.88 ****	24.67 ****	25.71 ****		26.79 ****
		2	2	4.61	5.99	7.38	9.21	1.84	2.87	8.58 ***	10.33 ****	5.74 *		10.16 ****

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

Table 3: Chi-square based Tests (continued: 11)

Combination	k	r	DGF	CHISQ 10%	5%	2.5%	1%	Korea (Won)	Singapore ($SG)	Indonesia (Rupiah)	Malaysia (Ringgit)	The Philippines (Peso)	Thailand (Baht)	China (Yuan)
US603	5	2	2	4.61	5.99	7.38	9.21	6.44 **	12.89 ****	13.88 ****	5.34 *		38.21 ****	25.46 ****
		2	4	7.78	9.49	11.14	13.28	19.68 ****	16.22 ****	23.08 ****	20.27 ****		19.74 ****	19.83 ****
		2	2	4.61	5.99	7.38	9.21	19.45 ****	15.9 ****	8.61 ***	4.2		28.17 ****	4.37
US604	4	2	2	4.61	5.99	7.38	9.21	7.49 ***	1.66	5.4 *		1.8	13.7 ****	24.92 ****
		2	4	7.78	9.49	11.14	13.28	22.22 ****	14.41 ****	22.43 ****		21 ****	17.21 ****	17.93 ****
		2	2	4.61	5.99	7.38	9.21	9.08 ***	9.03 ***	8.4 ***		2.28	16.18 ****	13.45 ****
US605	3	3	3	6.25	7.81	9.35	11.34	11.15 **	10.67 **		23.86 ****	27.34 ****	23.68 ****	14.09 ****
		3	3	6.25	7.81	9.35	11.34	16.65 ***	18.07 ****		19.01 ****	17.99 ****	17.82 ****	18.42 ****
		3	3	6.25	7.81	9.35	11.34	17.49 ***	16.9 ***		10.47 **	19.18 ****	6.31	17.3 ***
US606	4	3	3	6.25	7.81	9.35	11.34	5.79		14.49 ****	18.18 ****	22.76 ****	25.73 ****	28.92 ****
		3	3	6.25	7.81	9.35	11.34	16.74 ***		20.45 ****	19.28 ****	19.84 ****	20.31 ****	20.16 ****
		3	3	6.25	7.81	9.35	11.34	12.99 ***		13.76 ****	8 *	11.99 ***	11.24 **	21.41 ****
US607	4	1	1	2.71	3.84	5.02	6.63		3.86 **	0.05	17.47 ****	20.58 ****	7.07 ****	2.02
		1	5	9.24	11.1	12.83	15.09		42.42 ****	49.58 ****	43.88 ****	49.59 ****	45.19 ****	44.61 ****
		1	1	2.71	3.84	5.02	6.63		14.23 ****	5.97 ***	22.59 ****	0.25	8.78 ****	1.17
US701	3	3	3	6.25	7.81	9.35	11.34	8.41 *	7.08	7.19	15.97 ****	20.57 ****	15.13 ****	11.39 ****
		3	4	7.78	9.49	11.14	13.28	23.03 ***	25.03 ****	25.31 ****	20.88 ***	23.11 ****	25.1 ****	26.65 ****
		3	3	6.25	7.81	9.35	11.34	11.4 ***	9.01 *	2.65	11.22 **	11.26 **	14.71 ****	4.92

Test statistics indicate for "long- run exclusion"(upper), "stationarity"(middle), and "weak exogeneity"(lower in the calm) respectively.

† Significance level: *90%, **95%, ***97.5%, ****99%, k is lag- order of ECM, r is row of matrix beta

Table 2: Johansen tests

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
301	Korea + Singapore + Indonesia	2	0	0.167	20.310 ***	31.860 ***	0.141	17.320 ***	29.800 ***
		3	1	0.098	11.390 ***	11.550	0.066	7.790	12.490 *
			2	0.001	0.150	0.150	0.040	4.690 *	4.690 *
302	Korea + Singapore + Malaysia	2	0	0.162	19.650 ***	30.760 ***	0.1233	14.61 ***	21.22
		2	1	0.092	10.690 ***	11.110	0.0511	5.82	6.61
			2	0.004	0.420	0.420	0.0071	0.79	0.79
303	Korea + Indonesia + Malaysia	6	0	0.155	20.770 ***	30.300 ***	0.157	20.520 ***	29.090 **
		5	1	0.070	8.910 **	9.530	0.062	7.680	8.560
			2	0.005	0.620	0.620	0.007	0.880	0.880
304	Singapore + Indonesia + Malaysia	2	0	0.126	14.890 ***	26.340 *	0.154	20.130 ***	36.650 ***
		5	1	0.091	10.620 ***	11.450	0.077	9.650 ***	16.530 ***
			2	0.007	0.830	0.830	0.056	6.880 **	6.880 **
305	Korea + Singapore + The Philippines	2	0	0.173	21.100 ***	30.680 ***	0.0724	8.34	12.58
		2	1	0.068	7.790	9.580	0.0344	3.89	4.24
			2	0.016	1.790	1.790	0.0032	0.35	0.35
306	Korea + Indonesia + The Philippines	2	0	0.116	13.690 ***	15.640	0.212	27.110 ***	30.610 ***
		3	1	0.014	1.600	1.940	0.024	2.730	3.500
			2	0.003	0.340	0.340	0.007	0.770	0.770
307	Singapore + Indonesia + The Philippines	11	0	0.116	17.050 ***	31.270 ***	-	-	-
		-	1	0.052	7.300	14.210 **	-	-	-
			2	0.049	6.910 **	6.910 **	-	-	-
308	Korea + Malaysia + The Philippines	3	0	0.241	31.380 ***	34.180 ***	0.193	25.080 ***	30.650 ***
		4	1	0.015	1.680	2.800	0.037	4.370	5.560
			2	0.010	1.120	1.120	0.010	1.190	1.190
309	Singapore + Malaysia + The Philippines	2	0	0.100	11.690	17.550	-	-	-
		—	1	0.042	4.800	5.850	-	-	-
			2	0.009	1.050	1.050	-	-	-
310	Indonesia + Malaysia + The Philippines	4	0	0.172	22.070 ***	26.740 **	0.110	16.030 ***	25.340 *
		11	1	0.026	3.120	4.670	0.057	8.100 *	9.320
			2	0.013	1.550	1.550	0.009	1.220	1.220
311	Korea + Singapore + Thailand	9	0	0.173	25.120 ***	40.230 ***	0.2126	32.99 ***	42.06 ***
		11	1	0.099	13.770 ***	15.110 **	0.0556	7.89	9.07
			2	0.010	1.340	1.340	0.0085	1.18	1.18
312	Korea + Indonesia + Thailand	3	0	0.249	32.690 ***	38.710 ***	0.166	20.680 ***	26.980 **
		12	1	0.045	5.240	6.020	0.041	4.730	6.300
			2	0.007	0.790	0.790	0.014	1.570	1.570
313	Singapore + Indonesia + Thailand	4	0	0.163	20.880 ***	31.210 ***	0.142	18.350 ***	28.820 **
		5	1	0.082	10.070 ***	10.330	0.054	6.680	10.470
			2	0.002	0.270	0.270	0.031	3.800	3.800

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 1)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
314	Korea + Malaysia + Thailand	3	0	0.159	19.690 ***	25.770 *	0.0915	12.09 *	24.96 *
		7	1	0.046	5.370	6.080	0.078	10.23 ***	12.86 *
			2	0.006	0.710	0.710	0.0207	2.63	2.63
315	Singapore + Malaysia + Thailand	11	0	0.302	49.690 ***	62.360 ***	0.111	13.770 ***	31.800 ***
		4	1	0.082	11.760 ***	12.670 *	0.092	11.310 ***	18.030 ***
			2	0.007	0.900	0.900	0.056	6.720 **	6.720 **
316	Indonesia + Malaysia + Thailand	7	0	0.107	14.310 ***	24.970 *	0.163	21.360 ***	33.650 ***
		5	1	0.079	10.320 ***	10.660	0.075	9.390 ***	12.290 *
			2	0.003	0.350	0.350	0.024	2.900	2.900
317	Korea + The Philippines + Thailand	2	0	0.101	11.780	15.810	0.133	18.790 ***	28.800 **
		9	1	0.035	3.990	4.020	0.056	7.630	10.000
			2	0.000	0.040	0.040	0.018	2.370	2.370
318	Singapore + The Philippines + Thailand	3	0	0.087	10.420	16.750	-	-	-
		—	1	0.044	5.160	6.330	-	-	-
			2	0.010	1.160	1.160	-	-	-
319	Indonesia + The Philippines + Thailand	11	0	0.116	17.020 ***	21.520	0.059	7.140	15.070
		4	1	0.030	4.230	4.500	0.042	4.960	7.940
			2	0.002	0.270	0.270	0.025	2.970	2.970
320	Malaysia + The Philippines + Thailand	12	0	0.116	17.420 ***	28.740 **	-	-	-
		—	1	0.066	9.570 ***	11.320	-	-	-
			2	0.012	1.750	1.750	-	-	-
321	The Philippines + Thailand + China	2	0	0.094	10.900	14.130	0.154	21.080 ***	34.050 ***
		7	1	0.022	2.450	3.230	0.080	10.510 ***	12.970 *
			2	0.007	0.780	0.780	0.019	2.460	2.460
322	Malaysia + Thailand + China	4	0	0.135	16.990 ***	26.770 **	0.107	13.970 ***	27.400 **
		6	1	0.054	6.450	9.780	0.079	10.070 ***	13.430 *
			2	0.028	3.330	3.330	0.027	3.360	3.360
323	Indonesia + Thailand + China	2	0	0.095	11.030	16.190	0.187	23.610 ***	35.840 ***
		3	1	0.043	4.840	5.160	0.065	7.660	12.230 *
			2	0.003	0.320	0.320	0.039	4.570 *	4.570 *
324	Singapore + Thailand + China	11	0	0.186	28.330 ***	42.700 ***	0.215	29.000 ***	36.880 ***
		5	1	0.076	10.850 ***	14.370 **	0.038	4.580	7.870
			2	0.025	3.520	3.520	0.027	3.290	3.290
325	Korea + Thailand + China	10	0	0.105	15.020 ***	27.020 **	0.156	19.850 ***	30.590 ***
		4	1	0.060	8.300 *	12.000	0.064	7.730	10.730
			2	0.027	3.700	3.700	0.025	3.000	3.000
326	Malaysia + The Philippines + China	12	0	0.144	21.960 ***	36.220 ***	0.184	28.710 ***	39.940 ***
		12	1	0.075	11.040 ***	14.260 **	0.050	7.190	11.220
			2	0.023	3.220	3.220	0.028	4.030	4.030

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 2)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
327	Indonesia + The Philippines + China	12	0	0.136	20.560 ***	32.420 ***	0.094	10.910	20.260
		2	1	0.074	10.770 ***	11.870	0.053	6.080	9.360
			2	0.008	1.100	1.100	0.029	3.280	3.280
328	Singapore + The Philippines + China	12	0	0.125	18.790 ***	28.220 **	0.151	18.160 ***	27.990 **
		2	1	0.037	5.330	9.430	0.054	6.120	9.830
			2	0.029	4.090	4.090	0.033	3.700	3.700
329	Korea + The Philippines + China	3	0	0.156	19.310 ***	26.750 **	0.067	7.750	12.270
		2	1	0.063	7.370	7.440	0.039	4.390	4.520
			2	0.001	0.070	0.070	0.001	0.130	0.130
330	Indonesia + Malaysia + China	4	0	0.122	15.260 ***	24.610 *	0.156	19.810 ***	35.990 ***
		4	1	0.045	5.420	9.340	0.102	12.600 ***	16.190 ***
			2	0.033	3.920	3.920	0.030	3.590	3.590
331	Singapore + Malaysia + China	3	0	0.133	16.240 ***	24.100 *	0.166	22.900 ***	34.540 ***
		7	1	0.061	7.170	7.860	0.053	6.920	11.640
			2	0.006	0.680	0.680	0.037	4.730 *	4.730 *
332	Korea + Malaysia + China	3	0	0.117	14.240 ***	25.990 *	0.129	15.370 ***	21.480
		2	1	0.075	8.870 **	11.750	0.049	5.600	6.100
			2	0.025	2.890	2.890	0.005	0.500	0.500
333	Singapore + Indonesia + China	2	0	0.124	14.710 ***	20.450	0.199	27.320 ***	35.330 ***
		6	1	0.049	5.600	5.740	0.041	5.110	8.010
			2	0.001	0.140	0.140	0.023	2.900	2.900
334	Korea + Indonesia + China	4	0	0.091	11.180	20.920	0.150	18.540 ***	28.600 **
		3	1	0.045	5.430	9.740	0.053	6.150	10.060
			2	0.036	4.310 *	4.310 *	0.034	3.920	3.920
335	Korea + Singapore + China	9	0	0.170	24.590 ***	39.550 ***	0.196	26.160 ***	36.410 ***
		5	1	0.107	14.940 ***	14.960 **	0.059	7.320	10.260
			2	0.000	0.020	0.020	0.024	2.940	2.940
401	Korea + Singapore + Indonesia + Malaysia	6	0	0.249	33.500 ***	66.110 ***	0.173	21.520 ***	52.800 ***
		5	1	0.186	24.030 ***	32.600 ***	0.150	18.410 ***	31.280 ***
			2	0.067	8.080 *	8.580	0.066	7.680	12.860 *
			3	0.004	0.490	0.490	0.045	5.190 *	5.190 *
402	Korea + Singapore + Indonesia + The Philippines	3	0	0.174	20.090 ***	40.660 *	0.110	11.810	25.080
		2	1	0.126	14.090 ***	20.570	0.084	8.880	13.270
			2	0.060	6.460	6.470	0.043	4.390	4.390
			3	0.000	0.010	0.010	0.000	0.000	0.000
403	Korea + Singapore + Malaysia + The Philippines	3	0	0.160	18.280 ***	36.690	0.263	31.970 ***	48.150 ***
		3	1	0.097	10.700	18.410	0.088	9.630	16.170
			2	0.061	6.590	7.700	0.053	5.710	6.540
			3	0.011	1.110	1.110	0.008	0.830	0.830

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 3)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
404	Korea + Indonesia + Malaysia + The Philippines	12	0	0.225	35.840 ***	67.020 ***	0.219	26.980 ***	46.950 ***
		4	1	0.115	17.160 ***	31.180 ***	0.154	18.190 ***	19.970
			2	0.078	11.410 ***	14.020 **	0.009	1.030	1.780
			3	0.018	2.620	2.620	0.007	0.750	0.750
405	Singapore + Indonesia + Malaysia + The Philippines	3	0	0.199	23.330 ***	42.420 *	-	-	-
		-	1	0.120	13.410 ***	19.090	-	-	-
			2	0.050	5.330	5.680	-	-	-
			3	0.003	0.350	0.350	-	-	-
406	Korea + Singapore + Indonesia + Thailand	4	0	0.227	28.120 ***	59.600 ***	0.189	24.490 ***	61.890 ***
		6	1	0.172	20.510 ***	31.480 ***	0.176	22.570 ***	37.400 ***
			2	0.090	10.250 ***	10.980	0.092	11.240 ***	14.830 **
			3	0.007	0.720	0.720	0.030	3.590	3.590
407	Korea + Singapore + Malaysia + Thailand	5	0	0.196	24.660 ***	46.200 ***	0.136	15.370	34.970
		3	1	0.100	11.850	21.540	0.088	9.630	19.600
			2	0.080	9.430 ***	9.700	0.084	9.170 ***	9.970
			3	0.002	0.270	0.270	0.008	0.790	0.790
408	Korea + Indonesia + Malaysia + Thailand	6	0	0.213	27.980 ***	50.980 ***	0.123	13.210	25.480
		2	1	0.106	13.150 ***	23.000	0.089	9.460	12.270
			2	0.079	9.590 ***	9.850	0.027	2.800	2.810
			3	0.002	0.260	0.260	0.000	0.000	0.000
409	Singapore + Indonesia + Malaysia + Thailand	4	0	0.302	39.250 ***	61.110 ***	0.214	26.240 ***	58.260 ***
		4	1	0.113	13.090 ***	21.870	0.155	18.340 ***	32.020 ***
			2	0.070	7.900	8.780	0.065	7.380	13.680 *
			3	0.008	0.880	0.880	0.056	6.300 **	6.300 **
410	Korea + Singapore + The Philippines + Thailand	4	0	0.196	23.770 ***	41.610 *	0.135	14.650	29.000
		2	1	0.104	12.010 *	17.840	0.087	9.200	14.350
			2	0.051	5.710	5.830	0.043	4.450	5.150
			3	0.001	0.120	0.120	0.007	0.700	0.700
411	Korea + Indonesia + The Philippines + Thailand	5	0	0.244	31.650 ***	45.620 **	0.207	26.180 ***	43.340 **
		5	1	0.087	10.320	13.970	0.094	11.130	17.160
			2	0.025	2.900	3.640	0.034	3.860	6.030
			3	0.007	0.740	0.740	0.019	2.170	2.170
412	Singapore + Indonesia + The Philippines + Thailand	-	0	-	-	-	-	-	-
		-	1	-	-	-	-	-	-
			2	-	-	-	-	-	-
			3	-	-	-	-	-	-
413	Korea + Malaysia + The Philippines + Thailand	3	0	0.203	23.880 ***	34.210	0.246	30.710 ***	41.410 *
		4	1	0.062	6.760	10.330	0.067	7.590	10.710
			2	0.033	3.520	3.570	0.022	2.370	3.120
			3	0.001	0.050	0.050	0.007	0.750	0.750

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 4)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
414	Singapore + Malaysia + The Philippines + Thailand	-	0	-	-	-	-	-	-
		-	1	-	-	-	-	-	-
			2	-	-	-	-	-	-
			3	-	-	-	-	-	-
415	Indonesia + Malaysia + The Philippines + Thailand	11	0	0.209	32.110 ***	52.190 ***	-	-	-
		-	1	0.089	12.840 **	20.080	-	-	-
			2	0.051	7.190	7.250	-	-	-
			3	0.000	0.050	0.050	-	-	-
416	Korea + Singapore + Indonesia + China	10	0	0.170	24.720 ***	56.390 ***	0.209	26.420 ***	55.810 ***
		5	1	0.135	19.320 ***	31.660 ***	0.145	17.710 ***	29.390 ***
			2	0.089	12.330 ***	12.340 *	0.062	7.280	11.670
			3	0.000	0.010	0.010	0.038	4.400 *	4.400 *
417	Korea + Singapore + Malaysia + China	5	0	0.202	25.480 ***	44.240 **	0.204	25.740 ***	48.980 ***
		5	1	0.114	13.630 ***	18.760	0.109	12.980 **	23.230
			2	0.043	4.990	5.130	0.059	6.900	10.260
			3	0.001	0.140	0.140	0.029	3.360	3.360
418	Korea + Indonesia + Malaysia + China	11	0	0.176	26.590 ***	60.930 ***	0.207	28.990 ***	53.930 ***
		8	1	0.153	22.800 ***	34.330 ***	0.088	11.480	24.950 *
			2	0.052	7.330	11.530	0.068	8.850 **	13.470 *
			3	0.030	4.200 *	4.200 *	0.036	4.620 *	4.620 *
419	Singapore + Indonesia + Malaysia + China	4	0	0.254	31.900 ***	50.120 ***	0.233	30.020 ***	64.700 ***
		5	1	0.102	11.740	18.220	0.142	17.330 ***	34.670 ***
			2	0.052	5.840	6.480	0.112	13.470 ***	17.340 ***
			3	0.006	0.640	0.640	0.034	3.870	3.870
420	Korea + Singapore + The Philippines + China	4	0	0.195	23.590 ***	46.000 ***	0.213	26.080 ***	40.540 *
		4	1	0.130	15.130 ***	22.410	0.079	8.940	14.460
			2	0.057	6.420	7.280	0.040	4.420	5.520
			3	0.008	0.850	0.850	0.010	1.100	1.100
421	Korea + Indonesia + The Philippines + China	2	0	0.102	10.910	22.510	0.171	22.640 ***	50.450 ***
		7	1	0.062	6.440	11.600	0.141	18.360 ***	27.810 **
			2	0.050	5.150	5.160	0.043	5.300	9.440
			3	0.000	0.010	0.010	0.034	4.140	4.140
422	Singapore + Indonesia + The Philippines + China	12	0	0.167	25.810 ***	50.010 ***	0.169	18.680 ***	37.640
		2	1	0.109	16.290 ***	24.200 *	0.095	10.030	18.970
			2	0.046	6.640	7.910	0.051	5.320	8.930
			3	0.009	1.270	1.270	0.035	3.610	3.610
423	Korea + Malaysia + The Philippines + China	3	0	0.189	22.030 ***	35.190	0.232	27.710 ***	42.480 *
		3	1	0.079	8.630	13.160	0.093	10.250	14.770
			2	0.042	4.520	4.530	0.034	3.630	4.520
			3	0.000	0.010	0.010	0.009	0.890	0.890

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 5)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
424	Singapore + Malaysia + The Philippines + China	2	0	0.123	13.210	26.170	-	-	-
		-	1	0.069	7.180	12.960	-	-	-
			2	0.056	5.770	5.770	-	-	-
			3	0.000	0.000	0.000	-	-	-
425	Indonesia + Malaysia + The Philippines + China	11	0	0.171	25.720 ***	52.340 ***	0.185	21.420 ***	42.940 **
		3	1	0.102	14.800 ***	26.620 **	0.094	10.340	21.520
			2	0.073	10.310 ***	11.820	0.074	8.060	11.180
			3	0.011	1.510	1.510	0.029	3.120	3.120
426	Korea + Singapore + Thailand + China	8	0	0.193	26.840 ***	46.630 ***	0.220	32.060 ***	63.220 ***
		9	1	0.122	16.300 ***	19.800	0.137	18.990 ***	31.170 ***
			2	0.027	3.360	3.500	0.051	6.690	12.180
			3	0.001	0.140	0.140	0.042	5.480 **	5.480 **
427	Korea + Indonesia + Thailand + China	4	0	0.174	20.880 ***	37.280	0.205	26.840 ***	59.520 ***
		6	1	0.091	10.360	16.400	0.157	19.980 ***	32.680 ***
			2	0.053	5.930	6.040	0.067	8.050	12.700 *
			3	0.001	0.110	0.110	0.039	4.650 *	4.650 *
428	Singapore + Indonesia + Thailand + China	10	0	0.215	32.180 ***	49.430 ***	0.268	35.230 ***	57.830 ***
		5	1	0.081	11.230	17.250	0.079	9.330	22.600
			2	0.044	6.010	6.020	0.076	8.960 **	13.270 *
			3	0.000	0.010	0.010	0.038	4.310 *	4.310 *
429	Korea + Malaysia + Thailand + China	2	0	0.129	13.980	29.600	0.223	27.460 ***	47.770 ***
		4	1	0.097	10.320	15.620	0.117	13.550 ***	20.310
			2	0.047	4.850	5.290	0.045	5.010	6.760
			3	0.004	0.440	0.440	0.016	1.760	1.760
430	Singapore + Malaysia + Thailand + China	2	0	0.131	14.220	25.730	0.254	33.120 ***	53.300 ***
		5	1	0.078	8.170	11.510	0.093	10.960	20.170
			2	0.033	3.340	3.350	0.043	4.940	9.210
			3	0.000	0.010	0.010	0.037	4.270 *	4.270 *
431	Indonesia + Malaysia + Thailand + China	11	0	0.178	26.770 ***	54.220 ***	0.237	32.780 ***	68.940 ***
		7	1	0.130	19.030 ***	27.450 **	0.152	19.980 ***	36.170 ***
			2	0.054	7.620	8.420	0.102	12.970 ***	16.180 ***
			3	0.006	0.800	0.800	0.026	3.210	3.210
432	Korea + The Philippines + Thailand + China	3	0	0.109	12.100	22.670	0.217	26.690 ***	41.600 *
		4	1	0.071	7.690	10.570	0.085	9.680	14.900
			2	0.021	2.250	2.880	0.035	3.900	5.220
			3	0.006	0.620	0.620	0.012	1.320	1.320
433	Singapore + The Philippines + Thailand + China	2	0	0.118	12.690	22.150	0.201	23.600 ***	46.330 ***
		3	1	0.069	7.170	9.460	0.108	11.980 *	22.720
			2	0.022	2.290	2.290	0.055	5.920	10.740
			3	0.000	0.000	0.000	0.045	4.820 *	4.820 *

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 6)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
434	Indonesia + The Philippines + Thailand + China	12	0	0.172	26.530 ***	46.640 ***	0.259	42.240 ***	76.360 ***
		12	1	0.068	9.960	20.110	0.117	17.590 ***	34.120 ***
			2	0.050	7.230	10.150	0.088	13.030 ***	16.530 ***
			3	0.021	2.920	2.920	0.025	3.500	3.500
435	Malaysia + The Philippines + Thailand + China	12	0	0.146	22.270 ***	53.430 ***	0.199	23.230 ***	53.030 ***
		3	1	0.122	18.290 ***	31.160 ***	0.167	19.170 ***	29.810 ***
			2	0.046	6.650	12.870 *	0.066	7.140	10.640
			3	0.043	6.220 **	6.220 **	0.033	3.510	3.510
501	Korea + Singapore + Indonesia + Malaysia + The Philippines	-	0	-	-	-	0.271	30.350 ***	61.880 *
		3	1	-	-	-	0.148	15.410	31.540
			2	-	-	-	0.107	10.870	16.130
			3	-	-	-	0.050	4.960	5.260
			4	-	-	-	0.003	0.300	0.300
502	Korea + Singapore + Indonesia + Malaysia + Thailand	3	0	0.205	21.960 ***	59.440 *	-	-	-
		-	1	0.167	17.520 ***	37.480	-	-	-
			2	0.118	12.100 *	19.950	-	-	-
			3	0.073	7.310	7.860	-	-	-
			4	0.006	0.550	0.550	-	-	-
503	Korea + Singapore + Indonesia + The Philippines + Thailand	5	0	0.307	38.880 ***	73.870 ***	0.273	29.040 ***	68.010 ***
		2	1	0.159	18.310 ***	34.980	0.211	21.580 ***	38.970
			2	0.094	10.490	16.680	0.108	10.420	17.390
			3	0.054	5.930	6.190	0.063	5.930	6.960
			4	0.002	0.260	0.260	0.011	1.030	1.030
504	Korea + Singapore + Malaysia + The Philippines + Thailand	-	0	-	-	-	-	-	-
		—	1	-	-	-	-	-	-
			2	-	-	-	-	-	-
			3	-	-	-	-	-	-
			4	-	-	-	-	-	-
505	Korea + Indonesia + Malaysia + The Philippines + Thailand	2	0	0.241	25.030 ***	57.630	0.284	32.050 ***	63.060 **
		3	1	0.178	17.850 ***	32.600	0.174	18.290 ***	31.010
			2	0.111	10.720	14.750	0.080	8.040	12.720
			3	0.040	3.720	4.030	0.041	3.970	4.680
			4	0.003	0.310	0.310	0.008	0.720	0.720
506	Singapore + Indonesia + Malaysia + The Philippines + Thailand	-	0	-	-	-	-	-	-
		—	1	-	-	-	-	-	-
			2	-	-	-	-	-	-
			3	-	-	-	-	-	-
			4	-	-	-	-	-	-

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 7)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
507	Korea + Singapore + Indonesia + Malaysia + China	7	0	0.272	36.880 ***	68.570 ***	0.318	44.360 ***	104.470 ***
		7	1	0.154	19.360 ***	31.680	0.256	34.330 ***	60.110 ***
			2	0.058	6.950	12.320	0.123	15.180 ***	25.780 *
			3	0.040	4.720	5.370	0.057	6.770	10.600
			4	0.006	0.650	0.650	0.033	3.830	3.830
508	Korea + Singapore + Indonesia + The Philippines + China	3	0	0.182	19.250	45.640	0.370	41.980 ***	74.780 ***
		2	1	0.133	13.750	26.390	0.163	16.200 **	32.810
			2	0.091	9.110	12.640	0.114	11.040	16.610
			3	0.036	3.510	3.530	0.059	5.560	5.560
			4	0.000	0.010	0.010	0.000	0.010	0.010
509	Korea + Singapore + Malaysia + The Philippines + China	3	0	0.176	18.590	47.260	0.286	32.280 ***	73.350 ***
		3	1	0.150	15.600	28.670	0.198	21.220 ***	41.080 *
			2	0.071	7.080	13.070	0.104	10.560	19.860
			3	0.061	5.990	5.990	0.090	9.000 **	9.300
			4	0.000	0.000	0.000	0.003	0.300	0.300
510	Korea + Indonesia + Malaysia + The Philippines + China	3	0	0.170	17.880	45.580	0.315	38.270 ***	73.340 ***
		4	1	0.149	15.430	27.700	0.157	17.230 ***	35.070
			2	0.083	8.340	12.270	0.113	12.070 *	17.840
			3	0.039	3.780	3.930	0.052	5.360	5.770
			4	0.002	0.150	0.150	0.004	0.410	0.410
511	Singapore + Indonesia + Malaysia + The Philippines + China	-	0	-	-	-	0.217	23.490 ***	69.110 ***
		3	1	-	-	-	0.196	20.890 ***	45.620 **
			2	-	-	-	0.151	15.740 ***	24.730 *
			3	-	-	-	0.052	5.150	8.990
			4	-	-	-	0.039	3.840	3.840
512	Korea + Singapore + Indonesia + Thailand + China	6	0	0.292	38.350 ***	68.820 ***	0.273	35.410 ***	89.860 ***
		6	1	0.146	17.480 ***	30.470	0.224	28.170 ***	54.450 ***
			2	0.078	9.000	12.990	0.151	18.160 ***	26.280 *
			3	0.033	3.760	3.990	0.054	6.120	8.130
			4	0.002	0.230	0.230	0.018	2.010	2.010
513	Korea + Singapore + Malaysia + Thailand + China	3	0	0.192	20.500 **	50.760	0.324	41.540 ***	64.950 **
		5	1	0.162	16.920 ***	30.270	0.087	9.690	23.410
			2	0.106	10.750	13.350	0.065	7.160	13.720
			3	0.027	2.600	2.600	0.051	5.580	6.560
			4	0.000	0.010	0.010	0.009	0.990	0.990
514	Korea + Indonesia + Malaysia + Thailand + China	3	0	0.207	22.250 ***	49.770	0.330	42.470 ***	85.280 ***
		5	1	0.125	12.860	27.520	0.212	25.270 ***	42.810 **
			2	0.098	9.850	14.660	0.091	10.110	17.550
			3	0.049	4.800	4.810	0.049	5.330	7.430
			4	0.000	0.010	0.010	0.020	2.100	2.100

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 8)

	Combination	k	H_0	Currency Basket Eigen Vector	L- Max	L- Trace	US Dollar Eigen Vector	L- Max	L- Trace
515	Singapore + Indonesia + Malaysia + Thailand + China	2	0	0.238	24.750 ***	54.450	0.336	43.340 ***	92.730 ***
		5	1	0.168	16.690 **	29.700	0.209	24.850 ***	49.390 ***
			2	0.092	8.820	13.010	0.124	14.030 ***	24.530 *
			3	0.042	3.860	4.190	0.061	6.680	10.500
			4	0.004	0.330	0.330	0.036	3.830	3.830
516	Korea + Singapore + The Philippines + Thailand + China	2	0	0.262	27.620 ***	56.670	0.342	42.190 ***	64.070 **
		4	1	0.166	16.570 **	29.040	0.095	10.100	21.870
			2	0.106	10.240	12.480	0.064	6.650	11.780
			3	0.024	2.230	2.240	0.048	5.010	5.120
			4	0.000	0.000	0.000	0.001	0.110	0.110
517	Korea + Indonesia + The Philippines + Thailand + China	2	0	0.289	31.000 ***	59.780 *	0.348	38.930 ***	76.710 ***
		2	1	0.161	15.930 *	28.770	0.193	19.560 ***	37.780
			2	0.106	10.150	12.850	0.117	11.310	18.220
			3	0.023	2.130	2.700	0.071	6.740	6.910
			4	0.006	0.570	0.570	0.002	0.170	0.170
518	Singapore + Indonesia + The Philippines + Thailand + China	-	0	-	-	-	0.327	35.960 ***	78.110 ***
		2	1	-	-	-	0.203	20.610 ***	42.140 *
			2	-	-	-	0.135	13.230 ***	21.540
			3	-	-	-	0.048	4.450	8.310
			4	-	-	-	0.042	3.860	3.860
519	Korea + Malaysia + The Philippines + Thailand + China	-	0	-	-	-	0.306	35.010 ***	74.980 ***
		3	1	-	-	-	0.181	19.120 ***	39.970 *
			2	-	-	-	0.118	12.040 *	20.840
			3	-	-	-	0.086	8.590 *	8.810
			4	-	-	-	0.002	0.220	0.220
520	Singapore + Malaysia + The Philippines + Thailand + China	-	0	-	-	-	-	-	-
		-	1	-	-	-	-	-	-
			2	-	-	-	-	-	-
			3	-	-	-	-	-	-
			4	-	-	-	-	-	-
521	Indonesia + Malaysia + The Philippines + Thailand + China	3	0	0.227	24.730 ***	50.960	0.284	33.790 ***	74.830 ***
		4	1	0.151	15.710 *	26.220	0.173	19.200 ***	41.040 *
			2	0.085	8.530	10.510	0.111	11.910 *	21.840
			3	0.020	1.970	1.980	0.061	6.380	9.930
			4	0.000	0.010	0.010	0.035	3.550	3.550
601	Korea +Singapore+ Indonesia+ Malaysia+ The Philippines+ Thailand	-	0	-	-	-	-	-	-
		-	1	-	-	-	-	-	-
			2	-	-	-	-	-	-
			3	-	-	-	-	-	-
			4	-	-	-	-	-	-
			5	-	-	-	-	-	-

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 2: Johansen tests (continued: 9)

	Combination	k	H_0	Currency Basket Eigen Vector	Currency Basket L- Max	Currency Basket L- Trace	US Dollar Eigen Vector	US Dollar L- Max	US Dollar L- Trace
602	Korea + Singapore + Indonesia + Malaysia + The Philippines + China	3	0	0.320	33.530 ***	86.370 **	0.340	36.130 ***	110.700 ***
		3	1	0.271	27.460 ***	52.840	0.295	30.350 ***	74.560 ***
			2	0.144	13.520	25.380	0.231	22.900 ***	44.220 **
			3	0.094	8.630	11.860	0.161	15.230 ***	21.320
			4	0.033	2.940	3.230	0.065	5.800	6.100
			5	0.003	0.280	0.280	0.003	0.300	0.300
603	Korea + Singapore + Indonesia + Malaysia + Thailand + China	2	0	0.386	39.490 ***	83.710 *	0.465	61.830 ***	126.570 ***
		5	1	0.246	22.890 ***	44.220	0.238	26.880 ***	64.740 **
			2	0.156	13.770	21.330	0.167	18.090 ***	37.860
			3	0.063	5.230	7.570	0.126	13.330 ***	19.770
			4	0.028	2.330	2.340	0.063	6.400	6.440
			5	0.000	0.000	0.000	0.001	0.050	0.050
604	Korea + Singapore + Indonesia + The Philippines + Thailand + China	2	0	0.390	39.980 ***	84.400 *	0.419	50.500 ***	116.500 ***
		4	1	0.255	23.870 ***	44.410	0.271	29.380 ***	66.000 **
			2	0.141	12.350	20.540	0.207	21.550 ***	36.620
			3	0.073	6.170	8.190	0.096	9.430	15.070
			4	0.024	1.990	2.020	0.057	5.450	5.650
			5	0.000	0.030	0.030	0.002	0.200	0.200
605	Korea + Singapore + Malaysia + The Philippines + Thailand + China	-	0	-	-	-	0.361	39.000 ***	113.920 ***
		3	1	-	-	-	0.313	32.690 ***	74.930 ***
			2	-	-	-	0.236	23.470 ***	42.230 *
			3	-	-	-	0.125	11.620	18.770
			4	-	-	-	0.079	7.110	7.150
			5	-	-	-	0.000	0.040	0.040
606	Korea + Indonesia + Malaysia + The Philippines + Thailand + China	-	0	-	-	-	0.343	39.080 ***	119.190 ***
		4	1	-	-	-	0.322	36.140 ***	80.110 ***
			2	-	-	-	0.226	23.860 ***	43.970 **
			3	-	-	-	0.121	12.000 *	20.110
			4	-	-	-	0.083	8.050	8.110
			5	-	-	-	0.001	0.050	0.050
607	Singapore + Indonesia + Malaysia + The Philippines + Thailand + China	-	0	-	-	-	0.445	54.730 ***	126.580 ***
		4	1	-	-	-	0.259	27.820 ***	71.850 ***
			2	-	-	-	0.213	22.270 ***	44.030 **
			3	-	-	-	0.111	10.980	21.760
			4	-	-	-	0.081	7.880	10.790
			5	-	-	-	0.031	2.910	2.910
701	Korea + Singapore + Indonesia + Malaysia + The Philippines + Thailand + China	-	0	-	-	-	0.420	42.480 ***	147.440 ***
		3	1	-	-	-	0.387	38.170 ***	104.950 ***
			2	-	-	-	0.311	29.070 ***	66.790 ***
			3	-	-	-	0.248	22.270 ***	37.720
			4	-	-	-	0.127	10.580	15.450
			5	-	-	-	0.060	4.800	4.870
			6	-	-	-	0.001	0.070	0.070

k: lag length, upper is for the currency basket, lower is for the US dollar

*95%, **97.5%, ***99.0%

Table 4: **Summary of Empirical Analysis**

Number of Countries in the Currency Area	Currency Basket						
	Korea(Won)	Singapore($SG)	Malaysia(Ringgit)	The Philippines(Peso)	Thailand(Baht)	Indonesia(Rupiah)	China(Yuan)
3		○			○	○	
		○	○		○		
		○			○		○
	○	○					○
4	○		○	○		○	
	○	○			○	○	
	○		○			○	○
	○	○			○		○

		○			○	○	○

U.S. dollar

Number of Countries in the Currency Area	Korea(Won)	Singapore($SG)	Malaysia(Ringgit)	The Philippines(Peso)	Thailand(Baht)	Indonesia(Rupiah)	China(Yuan)
4		○	○		○	○	